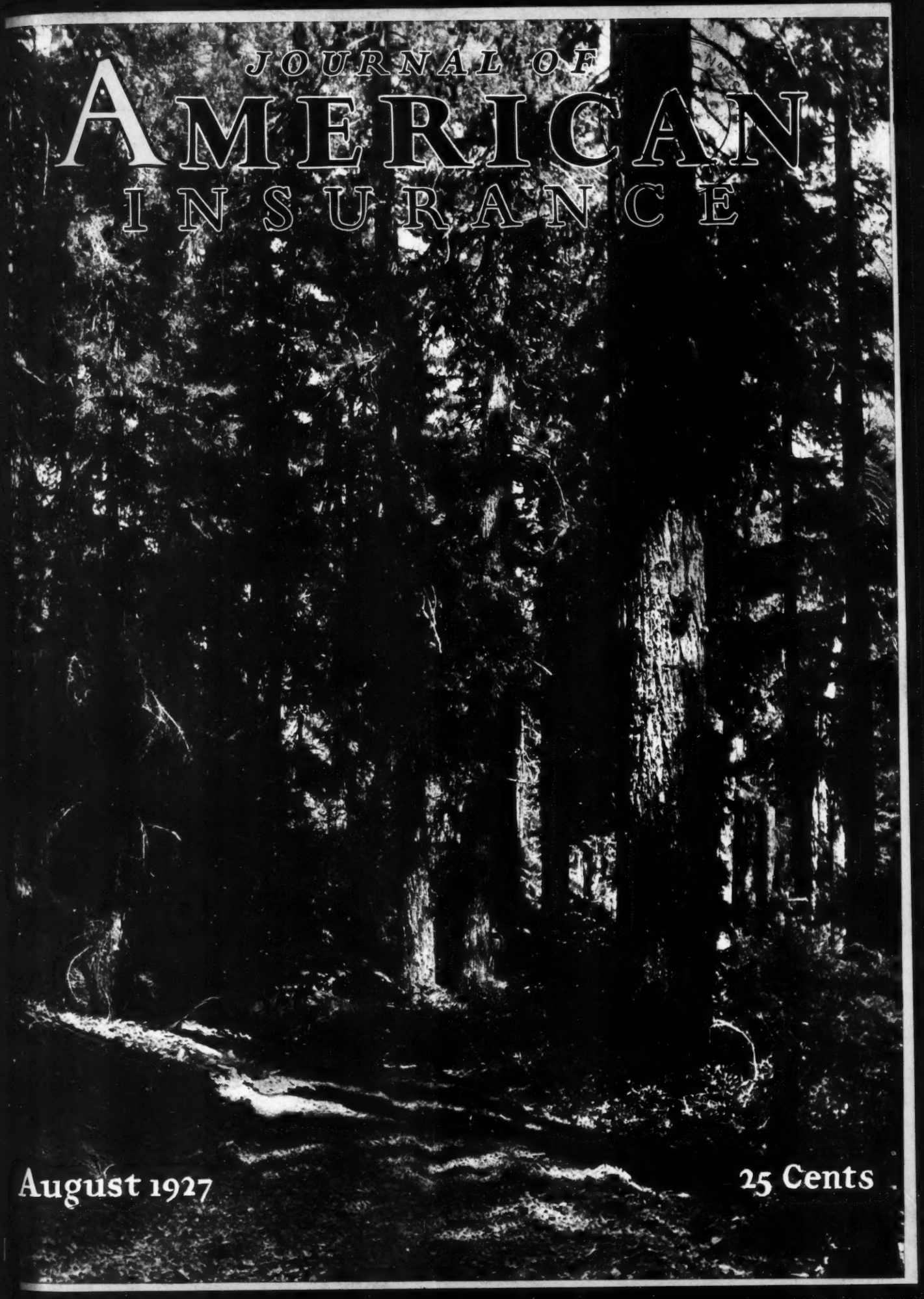
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Editorial and Advertising Offices:
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Forest Fire Loss Is Gigantic

Nearly Three-Quarters of a Million Acres of National Timber Destroyed in the Single Year of 1926

By J. PAUL ATWOOD

NINETEEN twenty-six stands fourth among the five worst fire years ever known. Although the figures must still be subjected to a final checking, they indicate now that 6,228 fires burned over 704,000 acres of national forest land and cost $2,250,000 for fire fighting. Add to this sum the millions of dollars worth of timber which went up in smoke, on private as well as on government owned land, and the loss assumes gigantic proportions.

What would have been our loss in woodland and money, if our forest fire fighters had been less efficient is not within the easy range of imagination. For 1926 was the worst lightning fire year ever known. And when lightning is aided and abetted by little rainfall and high winds, when the richest stands are dry, fire runs rampantly.

Years of experience enabled the fighters to control the majority of these blazes, but the few which were not promptly detected, or which gained headway, burst into such conflagrations that thousands of men had to be called to check the hungry flames. On one day in the Kaniksu National Forest in Idaho, 72 new fires started, and were brought under control just before the most serious lightning discharge ever seen in the region set off approximately 150 additional fires. Only 32 were not brought under control, and these, aided by "fire weather," wiped out 110,000 acres of government owned land, and 44,000 acres of privately owned woodlands.

Nothing can be done to eliminate the lightning fire; prompt attention may, however, restrict its damage. In 1926, the Weather Bureau began to indicate dangerous conditions likely to lead to lightning, in the Pacific Coast and Rocky Mountain districts, and this year, the forecasts will extend to the Lakes and Northeastern states. Forewarned is forearmed with the National Forest Service and an expected flame may be attacked with a maximum of ease and efficiency.

But it is only in the exceptional year that lightning plays such a foremost role. Ordinarily, men cause the majority of fires which destroy forests. A ten year average shows 51,021 blazes each year, including both small and large conflagrations, of which 9,440 are listed as incendiary, 9,034 as having been started by camp fires and smokers, 7,809 by brush burning, 6,287 by railroads, and 3,789 or only 7.4 by lightning. In the Rocky Mountain district approximately 17% of all fires are started by lightning.

"THE best way to fight a forest fire is to prevent it from starting," cryptically advises William B. Greeley, forester. Stringent anti-fire laws, educational campaigns in the schools, the wide broadcasting of government weather reports indicating fire weather and the necessity for extra precautions by sportsmen and timber-men, are helping to decrease the number of preventable blazes. And it is encouraging to realize that experienced foresters put the percentage of preventable blazes at 95%.

But all preventable fires will not be prevented in this imperfect world. The next step, therefore, is the maintenance of a satisfactory and economical plan of fighting forest fires. The Clark-McNary Law, effective on July 1, 1925, provides for increased cooperation between the national government, the state governments, and private owners both in fighting fires, and in reforestation. Cooperative work on such a large scale must, of necessity, take time in starting, and so no results of the new law are yet ascertainable. But it is expected to eliminate con-

© Photo by W. I. Hutchinson, Courtesy U. S. Forest Service.

Clean Swept Burned Area, Colorado National Forest, Colorado. Fire Still Smouldering.

siderable red tape, and to cut down materially our forest fire losses.

Unfortunately, a forest fire is of no special importance to the average citizen. Except for the natives of heavily wooded states, where lumbering and its by-products are the chief industries, few of us realize the disasters recorded in the brief newspaper announcements that fires are burning in portions of . . . . Fill in the name of the state for yourself; the past weeks have probably brought such items to your attention.

I remember once in the Northwest seeing a fire burning on the foothills of a large and famous mountain. There was so much smoke that the sightseers in the observation car were not able to see the mountain peak, and this was their chief concern. A forest fire to them was impersonal, and lacked meaning. If they had been able to see the fire fighters working against the lurid background, they might have realized that a forest fire means considerably more than a smoke haze hiding from view a tall mountain.

We are putting forth considerable energy in the reforestation of burned, and cut over areas, but just so long as fires are started carelessly, and considered unthinkingly, reforestation is useless. Little fires burn little trees, and little trees must be allowed to grow into big trees if we are to retain any portion of our woodlands. A ten second blaze may wipe out a ten years' growth. Even a small brush fire destroys the evergreens growing beneath it, and after the fire, the land is usually left entirely unseeded.

EVERY year our foresters are growing more efficient. They are expeditiously handling fires which only a few years ago would have been considered beyond control. By utilizing modern inventions; the airplane, the hygrothermograph, the telephone, improved pumps; and by means of closer cooperation between the foresters in the field and the foresters at central offices, the number of fires and the area wasted is being delimited. Well directed propaganda is likewise doing its share. The combined attack from every angle is encouraging forest experts and they expect to cut down in the next five years forest fire damage by more than half.

© Photo by K. D. Swan, Courtesy U. S. Forest Service.

Lookout, Coeur D'Alene National Forest.

Our forest fighting organization is exceedingly complex. There are first, second, third and fourth lines of defense in heavily wooded states. The fire fighters are trained like soldiers, ready to fight more heart-breaking battles than many military men ever envisage. Popularly, the foresters who are on duty throughout "fire weather" can be grouped as: Lookouts, whose headquarters are usually in high towers atop mountains, from which the country for miles around can be seen; Smoke Chasers, who must speed to the place where smoke has been observed, and either extinguish the blaze, or make a preliminary survey to secure sufficient help to control the fire; and finally Fire Wardens who are in charge of local fire fighting crews. In various states, the titles given to the fire fighters and rangers vary, but essentially, their work is always similarly aligned.

Fire Lookouts have already become commonplace to the majority of us, who have spent vacations in the mountains. A climb up the mountain to visit the lookout, and to view the surrounding country is usual enough. Most lookouts are obliging chaps, and they explain how they can determine where

© Photo by Lawrence, Courtesy U. S. Forest Service.

Echo Mountain Fire Ten Minutes Old

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The Entire Duty of This Man Is to Watch for Signs of Forest Fire Smoke.

fires are located, although the smoke is a thin thread, miles away. Innumerable fires have been brought under control because of these thin threads of smoke discovered by the solitary lookout.

But lookouts without some means of communication with the rest of the world would be entirely useless, and although heliograph signals are used, the sun does not always shine, and sun messages are often impossible. The telephone is one of the most important props of our forest rangers, and at present, hundreds of miles of wire are being carried over high mountains and through first growth forests to the lookouts.

LET us follow through a blaze from the time the first thin wisp of smoke is spied by the lookout, until the fire has been extinguished. A camper, or an automobilist may have carelessly thrown away a cigarette butt, and started the fire. The smoke is observed by the lookout and a telephone message to the nearest smoke chaser, enables him to get a good start on the fire, which is still a small one. The smoke chaser takes with him enough equipment to fight the blaze, and he knows of caches along the route where there are tools, and emergency food supplies for him and other fire fighters who may be called. If he feels that the fire has already gained too much headway, he immediately goes or sends for assistance. In a fireproofed forest, it is comparatively easy to gain the upper hand over the flames. For the fireproofing means that fire lines have been cleared, and trenches built over which the flames cannot readily jump. But when there are no fire lines, these must be quickly built in strategic positions.

Fire lines, no more than battle lines, are not impregnable against the further advance of the enemy, and often, the flames leap over the line which is set to restrict them to a certain area, or sparks are blown over the tree-tops. Fires in tree-tops are particularly hard to fight, especially when a stiff breeze is blowing. The best time to fight a forest fire is early in the morning when the humidity is high, and the wind low. Fires do not burn as vigorously at night as they do at mid-day, and so in the early morning the flames are caught in a somewhat somnolent condition.

Since the fire which we are fighting now is entirely imaginary, we can allow it to become as bad as we wish. Let us suppose then, that the flames continue to have the upper hand, and that new fires are continually starting in the neighborhood. An airplane will very likely be called into action, to make a survey of the conditions, and to chart the new fires, as well as to bring food and equipment to the forest fire-fighter. Airplanes can reach the fire-fighters with astonishing ease and rapidity and have lessened the hardships of forest fire-fighting.

Airplanes are not yet part of the equipment of the forestry service. Army planes have been lent for this work and are chiefly called into action to determine the location of fires which cannot be judged from lookout towers because of heavy haze or smoke. The observers carried have often been regular forest rangers. The planes are also useful in reforestation work as well as in the detection of fires. Low flying planes have seeded burned over areas, more economically and as satisfactorily as the slower method of planting by hand.

But reforestation cannot be considered until the flames have died out. One of the fires which we are fighting (in imagination) is in the tree-tops, and although, the flames which have been controlled before they spread over a wide area, the trees which have been singed, but not burned, will either be retarded

© Photo by K. D. Swan, Courtesy U. S. Forest Service.

Camps of Fire Fighters Are Excellently Equipped—As Witness This One in the Kootenai National Forest, Montana. Order Is the Fire Fighter's First Law.

in growth or may fall prey to insects, in their weakened condition. Another of the fires is in the brush, growing at the foot of tall trees. Brush fires are quick and very hot. Only the brush may have burned, and a few tree trunks been charred; every forest has trees with fire scars, mute signs of previous fires. And these scars offer an easy entrance to insects which attack trees.

EVERY fire is a problem in itself. The soil, topography, character of growth and many other items must be considered in fighting the flames. Fires burn less strongly at the top of hills than they do at the bottom, and therefore it is more desirable to attempt to control them at the top. The man in charge of the fire-fighting must determine what will be the best means of overcoming the flames, and independently carry out his ideas. Change of plan seldom secures the desired results.

In the anti-fire campaigns, backfires, and light burning once considered ligitimate means of checking flames, are looked upon askance, if not with entire disfavor. Backfires may easily escape control, and although set to burn back towards another fire, spread out into new territory; then they, in turn, become forest fires. Warnings have been issued by the foresters that none, except experienced people should start backfires, and then, only under certain conditions. The forecasts of the Weather Bureau make it possible to determine when the setting of backfires will be particularly dangerous, when the humidity will be low, and the winds strong.

Woodsmen and campers also are guided by the weather reports; the forecast of fire weather often meaning the temporary abandonment of work in the forest which necessitates the use of fire.

Light burning was formerly considered a method of preparedness against fires. Fires were set, supposedly to burn off dead trees, and underbrush, and although the fire did not get out of control, yet they caused so much damage to valuable timber, that they are rarely used today. Even when such precautions as clearing away the brush, and other inflamable materials from the base of valuable trees are taken, the loss in timber has been proved after tests to be a costly business. Experiments recently conducted have also shown that forests which have been light burned are even more inflamable than others, since the light burning increases the number of dead trees, providing good fire wood for any small blaze to thrive on.

According to some legends, the Indians were the first to indulge in light burning, but it is doubtful whether this is so. Fires may have been started to clear ground, and then got beyond the control of the fire makers. Early settlers may have also set fires to clear ground. But no records were kept of the acreage lost in those days, and so there is no way of comparing the overages of today, when fire making is supervised, and the number of fires when colonists started blazes wherever, and almost whenever they pleased.

LAWS against fire making, should show definite results within a few years. In California, Section 1665 of the Political Code as revised by the legislature, makes it obligatory upon teachers to give instruction in fire prevention, in buildings, forests and fields. In other states, similar instruction is part of the regular school curriculum, and without doubt, the knowledge impressed upon young children, will make better woodsmen of them and instill a love and respect for our forest lands.

The prevention of man-caused fires is being fostered in Wisconsin where the first organized and systematic effort to protect prospective forest lands from fire have been put into effect. The legislature has authorized eleven forest districts embracing approximately 14,000,000 acres. Each district is in charge of a district forest ranger, during periods of ordinary risk, and re-enforcements in periods of emergency will be recruited by fire wardens, in charge of local fire fighting units. In Wisconsin, too, there is a law that backfires set by unauthorized persons at times where fire weather makes them especially dangerous, is a criminal offense.

But the ranger cannot be everywhere. Campers and tourists are penetrating deeper into the woods, and are traveling in every direction. To check up on people who carelessly leave camp fires burning after they have moved on to another point, everyone who travels through wooded country is asked to watch for smoldering fires, and to put them out immediately. Whenever possible, the party which left the fire should be identified, and a report given to a ranger. The overwhelming majority of fires which are destroying our woodlands are preventable, because the large majority of them are man-made. And the simplest rules are more than likely to be the most successful.

The large number of fires which are listed as incendiary in the forester records is surprising. In the compilation of the figures for 1925, the fires of incendiary origin come first with 17,174, brush burning second with 13,889, while lightning is seventh with 6,847. There is only one way to decrease the number of incendiary fires, and that is to apprehend the culprit and to punish him severely enough to impress upon him, as well as upon others that criminally set fires will earn for the perpetrator a due punishment. The modern forest ranger has become something of a detective, and many people have been prosecuted because of his findings.

Mentally deranged persons are responsible for a number of the incendiary fires; but more than the "torches," the rangers must control the activities of careless workers and sportsmen who still do not recognize the fire laws as the first laws of the forests. In a new country, and a good-sized portion of our United States is still so new that it must be opened for farming and for railroads, large fires are necessities. Slash, and other waste materials from construction work must be disposed of, and before land is ready to be cultivated, piles of brush which has been cleared, must be burned. Little is left to the imagination of the man who has never undertaken similar work before. Rules, and regulations guide him away from danger, while rangers and fire wardens offer their services as consultants. In all cases, notice must be given of a farmer's intention to start fires, and this is an excellent precaution, because it enables the men in charge to prohibit the setting of fires during fire weather, and to give additional instructions concerning the safeguarding of forest lands.

(Continued on page 21)

Property and Casualty Insurance

Side Lights on the Importance of Closer Understanding Between All Parties Connected With These Branches of Underwriting

By AVARD L. BISHOP

Professor of Business Administration, Yale University

III.

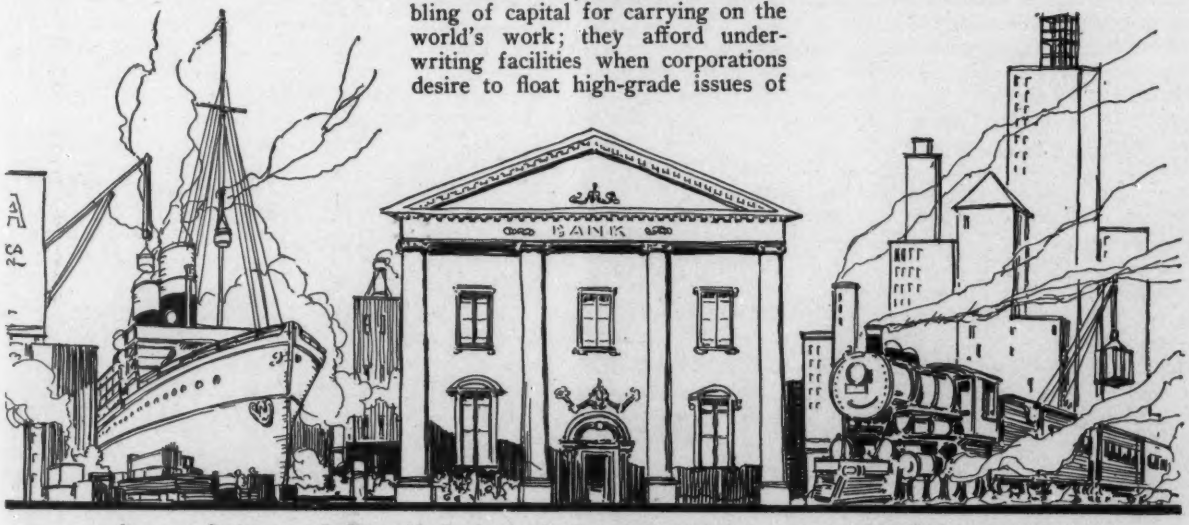
INSURANCE IN MODERN BUSINESS

THE purpose of this article is to feature an idea which, in our opinion, is given far less attention by writers, speakers and thinkers in general on matters pertaining to business in its broadest aspects than it actually merits. The idea in question is the indispensability of the service of insurance to modern business. By this we mean that present-day methods of conducting both domestic and foreign business would have to be completely revised were it not for the service rendered to many forms of business transactions by insurance. Here is a broad and comprehensive proposition; one which lends itself to extensive discussion. All that we can attempt to do here, in the brief space of a single article, is to outline certain general features of the subject in the hope both of stimulating interest therein and of bringing to the institution of insurance a greater appreciation of the services which it renders in carrying on the business of the workaday world.

Insurance is one of a considerable group of highly important activities in the business world which, though fundamentally different in many respects, have one outstanding feature in common, namely, they each *perform an indispensable service* in our general business organization, without producing anything of a tangible character. The group we have in mind includes banking, trust company service, transportation, insurance and other commercial, as contrasted with industrial activities. The work of each line of enterprise just mentioned is distinctive in character and quite easily differentiated from the others; nevertheless, each is an aid to other lines of enterprise and offers *services* to help facilitate the work of bringing forth economic goods to satisfy the ever-increasing wants of mankind. A few words of explanation will make this point clear.

THE service rendered by commercial banking institutions is a very important one in carrying on the world's business, but banking does not directly increase the value of goods nor does it produce them in the sense that production is commonly used in the world of affairs. Commercial banking facilitates business transactions on the part of those engaged in other lines of activity; it encourages production and trade, but this is all done through the service it renders to others. The work of investment banking institutions is to a very large degree of the same general order. They assist in the assembling of capital for carrying on the world's work; they afford underwriting facilities when corporations desire to float high-grade issues of securities; they have financial relations with their clients, whether they be individuals, insurance companies, trust companies, or savings banks. But, in the final analysis, their great contribution in the world of business is in rendering services rather than in directly producing tangible goods. Trust companies have the same general characteristic; they perform important services to the business community at large, cooperate with banks and insurance organizations in various matters, but unlike manufacturing plants they produce nothing tangible. Nevertheless, they lend a strong right arm to business as do commercial and investment banking houses; and they are just as necessary in their own peculiar way in our whole scheme of business organization as are the industrial enterprises engaged in the production of tangible goods. Transportation companies, such as railroads and steamship lines, are in the same general class of enterprises here under consideration. Transportation is absolutely indispensable as any thinking person will readily admit, but its contribution is mainly in the nature of a service rendered in taking goods from where they are not needed to places where they are in demand. Transportation does not change the form of the products carried, but it enhances their price.

Similarly, the service rendered by insurance in the routine of conduct-



Insurance Performs an Indispensable Service in the General Business Organization of This Nation and the World

ing the nation's business is analogous to that of banking, trust company service, and transportation. It does not actually produce tangible goods but by the absorption of risks it is an indispensable aid and accompaniment to their production, their financing, their transportation, and their marketing. Insurance performs a service which, from many standpoints, is of practically the same importance as banking, transportation, and the other commercial activities which facilitate the carrying on of business transactions; for without any of these services available the modern world of business in its tremendous task of bringing forth economic goods to satisfy human needs would function poorly, and be subject to inconveniences and risks of such great magnitude that the whole production machine would be thrown out of joint.

The indispensability of banking in the modern business world has long been recognized; the same is true of transportation; of trust company service; of communication services; of trading companies and organizations in general for facilitating exchanges. But there has been too scanty recognition, as we see it, of the far-reaching and indispensable service performd in behalf of modern business by that ancient and honorable institution—insurance. It is high time that this situation should be corrected.

THE indispensability of the service of insurance in modern business is due, in a large degree, to the credit system of doing business which is now well-nigh universal. When commerce was in its infancy and when exchanges were relatively few in number, goods were made locally as needed, and consumed locally, being bartered for each other among the scanty population. There was no property insurance in those days and no need of it to protect anyone's interest. With the growth of population, with the development and extension of business methods and the replacement of barter by a money economy and, in more recent times, the supplementing of a money economy by a credit system of doing business, production is no longer carried on to order. It is carried on, in the typical instance, on a relatively large scale and in advance of orders received for goods. In the meantime, capital has accumulated, wealth has increased, cities have developed, factory-production has supplanted production in the homes, and economic risks have multiplied because of our changed and more complicated economic organization. As already indicated, the new economic order is based on credit. Those whose opinions should be respected have estimated that, in the United States, not more than from five to ten per cent of the business is done with cash. This means that from ninety to ninety-five per cent of our business, both foreign and domestic, is carried on by the use of credit.

With a widespread credit system dominating business relationships the necessity of fire insurance, for example, can easily be appreciated. The wholesale merchant ordinarily must grant credit to the jobber and the retailer. He supplies them with goods for which he may not receive payment for several weeks or months. If such goods were destroyed by fire before they have been sold by the jobber or retailer, the wholesaler might find it very difficult to obtain his pay for them. By having the goods in question covered by fire insurance while still unpaid for, the wholesaler does not take the chance in granting credit that he otherwise would have to take. In fact, in many lines of business involving credit extension to large sums, fire insurance on goods in transit, and until payment for them has been completed, is looked upon by most people as absolutely necessary. Without such insurance the risk involved in credit extension would be too great. If the retailer's store were destroyed along with the goods contained therein, the retailer might find it difficult to pay the wholesaler when the bill came due. The chances are strong that he is planning to make such payment from the money received for the goods when sold to the final consumer. This subjects the wholesaler to a risk which, as already indicated, may be shifted to an insurance company so that the retailer is able to buy his goods from the wholesaler under more favorable terms than he otherwise would, and the wholesaler does not have to worry about delayed payment or total default if fire destroy the goods before they are paid for.

AN EXPANSION of this illustration will help to show still further the indispensability of fire insurance in credit transactions. It is altogether probable that the wholesaler himself is not doing business solely by means of his own capital. The chances are strong that he is either borrowing from a bank to help

(Continued on page 20)

Industry of All Kinds Is Filled with Hazards That, Without Insurance, Would Often Prove Disastrous to the Point of Bankruptcy

Insurance Conditions In France

Light on the Interesting Situation as Regards Profits, Taxation and Other Matters in our Sister Republic

By RICHARD MORRIS, F.S.S.
SECOND ARTICLE

UNDER whatever form insurance is accomplished, whether by means of a Mutual Company or of a Stock Company, the process in all cases is essentially mutual in character. The Mutual Company or the Stock Company acts only as an intermediary, the administrative factor for carrying out a mutual principle. The security of insurance is obtained by the creation of adequate reserves from unused portions of the premiums and the observance of the known rules of sound underwriting. The capital of a Stock Company is only a guarantee of good faith. This is made abundantly clear by reference to the value of property covered by insurance by any Stock Company as compared with its subscribed capital.*

PUBLIC scepticism or lack of confidence in any direction often finds expression in some kind of State interference. In the period of extreme financial stress through which France has been passing the Government scrutinized every possible source of taxation. The large profits of Stock Insurance were manifest to all and quickly attracted the eager attention of the French Treasury. I have already explained the Government's proposals to enter the insurance business in order to provide revenue for the State. That was not considered practicable at the moment so they decided to get a share of the profit by taxation. The result is that Insurance in France is taxed heavier than any other business. And the Mutuals suffer with the Stock Companies.

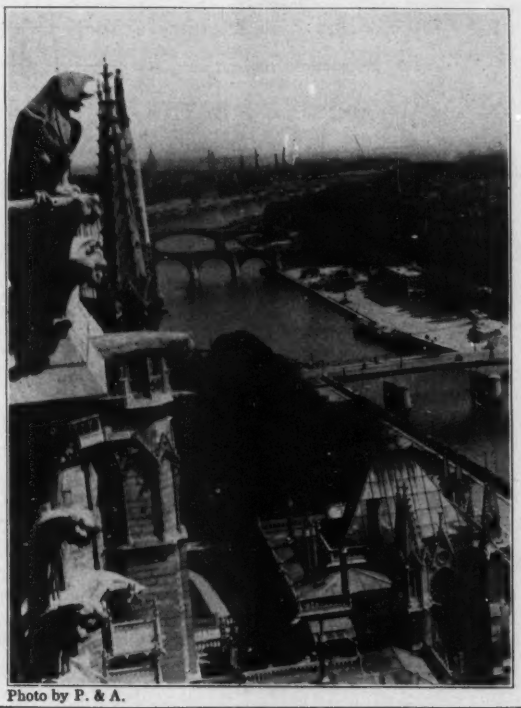


Photo by P. & A.

River Seine from the Cathedral of Notre Dame

The Editor of L'Assurance Mutuelle, a practicing lawyer in the Appeal Courts in Paris, one evening at his house in the Rue de l'Universite showed me the last premium receipt for the insurance of his household furniture.

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Municipal Tax	2.0
State Tax	124.25
Registration	.50
Total (Francs)	251.35

He could not tell me why the tax was more than the premium, nor could anyone else except that the tax was on the insured capital and not on the premium. I discussed this particular receipt one afternoon with the Director General of the Ville de Paris, one of the largest Mutual Companies in France, established in 1816. It became clear that the learned Editor had been overcharged, but I did not see him again to tell him. The more moderate the premium the bigger the tax appeared. On an average, taxation is estimated to be an addition of thirty percent on the premium.

INSURANCE taxation in France produces a revenue of over four hundred million francs a year. Some of it is paid immediately and directly by the policyholder when the policy is issued. A French Insurance policy is simply plastered with stamps. The following taxes are the most important:

(a) A tax of twenty per cent on the net profits of all Insurance Institutions, whether Stock or Mutual.

(b) A yearly tax on the annual volume of business transacted at rates which vary from one to five

* *M. Sumien, the Permanent Head of the French Insurance Department; a Councillor of State of France and a Professor of Political Economy in the University of Paris.*

The Quaint Villages of France Are So Beautiful That One Wishes They Could Be Forever Free from Danger of Fire

francs per thousand francs received in premiums.

(c) An annual tax of fourteen centimes per thousand francs of the sum insured against loss by fire by the Stock Companies and ten centimes for the Mutuals.

(d) A stamp fee fixed according to the size of the official paper on which the terms of the policy are printed. This tax varies from 2 frs. to 12 frs. (This tax was increased by forty per cent last year.)

(e) A registration fee of 2.25 frs. for every 100 frs. received in premiums, but for life policies the fee is 1.25 frs.

(f) Capitalization Companies pay a stamp duty of thirty centimes per one hundred francs of the insured value but they pay no registration fees.

(g) In fire insurance there is a further tax, formerly called the Fire Brigade Tax, of eighteen francs per million on the sum insured.

(h) A registration tax is payable when a life policy matures by death.

(i) A tax of twelve centimes per thousand francs of the sum insured is payable on insurances for hail, cattle, flood and other agricultural risks. (This was increased by forty per cent last year.)

(j) In the case of Annuities, an annual tax of eight francs per thousand francs on the money received by the company each year or on the capital consideration received by the company in respect of the annuity.

(k) In respect of Workmen's Compensation and Accidents generally there is a tax of eight francs per thousand of the total payments made each year to the company. (Increased in 1926 by 40%.)

(l) The whole of the expenses of control and supervision by the State are paid by the Companies and Societies in proportion to the amount of business done and varying according to the nature of the insurances affected. These expenses amount to about two million francs per annum.

(There may be some more taxes, but these are all I could find.)

THE tax in France on the profits of ordinary commercial concerns is 15 per cent, but on Insurance profits it is 20 per cent, an unfair discrimination produced by the atmosphere of the pulsating force. But why tax the Mutuals who make no "profit." The Mutuals are contesting the legality of this imposition. I put the question very pointedly to M. Sumien. Under the law of France, I said, Mutuals are not regarded as commercial concerns and in consequence are classified under the Civil Code. Why then should you try to tax them at a rate higher than that imposed on other forms of business. His answer was not intelligible to me so I repeated my question point by point. His answers on other matters were precise and clear but on this I could make neither head nor tail of what he was saying. I therefore abandoned my question. It was only afterwards I ascertained from some of the Mutual men in Paris that the subject had been referred to the Law Courts. What the Mutual people say is this: They admit that the financial situation of the country necessitates the greatest fiscal effort on the part of all. They must pay for the expenses of the war, for the reconstruction of the devastated areas, for pensions to the wounded and to the widows and orphans. But what they are anxious to avoid is a change in their legal status. They do not ask for privileges. What they want is to be treated according to the immemorial law of France as civil societies created for the object of providing adequate protection against grievous disasters without the intervention of profit-makers. For the moment, therefore, we must leave this question for the decision of the French Courts.

There are in France today about 1200 insurance companies of all kinds of which 450 are foreign. The French Companies are fairly equally divided between Stock and Mutual.

In 1919 there were 166 Marine Companies operating in France, 74 French and 92 Foreign. Last year there were 132, of which 51 were French and 81 Foreign. There are 59 Life Insurance Companies of which 43 are French, 26 being Stock, 9 Mutual, 6 for Marriage Dowries & Birth, 16 Foreign and 4 Ex-enemy in sequestration. There are 22 Tontine Companies of which 13 are in liquidation.

A word of explanation may be necessary with regard to "capitalization" companies, as the term denotes a form of insurance not practiced in the United Kingdom. Briefly, it combines with insurance an element of lottery. Policies are taken out for a definite period of years, usually fifteen, and at the end of that period, or previously should death ensue, the assured, or his heir, receives the sum specified in the contract. Periodical draws take place and should the number of the insured person's policy be drawn he receives the capital sum at once instead of waiting until the end of the 15 years besides being absolved from the payment of further premiums. These capitalization companies have been growing in popularity for twenty years. There are 39 of these Companies, all French, 23 being Stock and 16 Mutual. In 1921 their combined income was 126 million francs. By 1924 it had amounted to 295 million francs, one company alone being responsible for 125 million francs. Their total obligatory reserve amounts to over a thousand million francs.

THERE are 185 companies undertaking insurance against fire with a premium income, in 1925, of 942 million francs, claims

ANNUAL MEETING
of the
NATIONAL ASSOCIATION OF MUTUAL CASUALTY COMPANIES
and
NATIONAL ASSOCIATION OF AUTOMOTIVE MUTUAL INSURANCE COMPANIES
at
Buffalo, N. Y.
OCTOBER 10-11-12, 1927

amounted to 340 million francs, commission and expenses to 238 million francs, reserves 590 million francs. In spite of keen competition they are prosperous partly owing to the general increase in the value of property. The foreign companies, of which there are 86, owing to their more modern methods are regarded with favor by the public. Lloyds (London) also do a considerable fire business. The most pronounced effects of a depreciated currency have been seen in the case of fire insurance. As the franc fell to one-fifth or one-sixth of its pre-war value, owners of factories, etc., were averse to paying five or six times their original premiums and sought to devise some method of reducing their premium expenditure without at the same time running the risk

of having the average clause operated against them in the event of a fire. This led to the origination of what is known as a "premier feu" policy, the principal of which is as follows: Assuming a factory to consist of, say, five buildings each representing, with its contents, a value of 2 million francs, the total amount of property that has to be insured is obviously ten million francs. But if these buildings are not contiguous, it is highly improbable, in the event of a fire, that there will be a total loss; one whole building might be gutted, but the rest of the property remain uninjured. To meet such a case the party requiring cover is allowed to take out a policy of two million francs only (at a slightly higher rate of premium than the normal insurance rate) which gives him cover for the whole of the five buildings, up to a maximum payment by the insurance company of two million francs in respect of any one fire. Two forms of this policy exist, one known as "avarie toujours deduite" and the other as "franchise d'avarie." In the first case, no claim is admissible unless it exceeds a certain fixed minimum, and the amount of this minimum is always deducted from the payment made by the insurance company. In the second case, although claims below the fixed minimum are still inadmissible, in the event of loss exceeding that minimum the payment is made in full by the company.

After a time the fiscal authorities discovered that they were, in consequence of the general adoption of this new form of policy, losing revenue that they would otherwise have received, and it was thereupon decided that "premier feu" policies should be taxed at a triple rate. Following upon this, policies covering second, third, fourth, etc., fires were originated, with the object of avoiding the payment of the increased taxation on the greater part of the insurance.

Photograph Above Shows the City Hall of Paris, Where Col. Lindbergh Received Special Honors from French Officials and the Admiring Public

ANOTHER form of policy that came into existence was that which allowed a possible variation of ten per cent in the value of the insured goods owing to exchange

(Continued on page 22)

JOURNAL OF AMERICAN INSURANCE

Copyright 1927

Published Monthly by the
American Mutual Alliance
180 N. Michigan Avenue
Chicago, Illinois
Harold P. Janisch, Editor and Business Mgr.

Vol. 4 CHICAGO, AUGUST, 1927 No. 8

In August Prepare for the Harvest

IT is no use disputing the fact that summer induces to lethargy. The go-getting spirit meets vigorous competition from let-going persuasions. An outdoor world garbed in the raiment of holiday calls a seductive invitation to bang down the roll-top or sweep the paper from the flat-top, grab the long cylinder encasing golf clubs, the old fishing rod or the tennis racquet and fly the office "coop." If the mercury rises energy oozes, and the ordinary day's work looks like a year's hard labor. There are many subtle suggestions impinging on consciousness as we hit the trail to the job, and all hint in the same direction. We catch our commuting train by a daylight saving schedule; we encounter fellow citizens carrying suitcases and headed for anywhere but work; we see on business doors as we pass neat notices which read "This Store Closes at 1 P. M. Saturday During July and August."

Far be it from us to say that we are opposed to summer vacations. Much to the contrary. We believe a vacation is an essential factor in efficient living. By all means the man who does honest work for fifty weeks in the year should take an honest lay-off for two; we are willing to grant that where it can be done the work period may be reduced to 48 weeks and the lay-off increased to four with excellent results. It is not the actual vacation which calls for any protest; but rather the fact that we have developed a sort of vacation season mental attitude which tends to spread the relaxing of energy over a much longer period than the two or four weeks cessation of toil.

"WHAT'S the use of trying to do anything?" we say to ourselves. "Everybody is out of town, or planning to go out of town, or just getting back from being out of town." So up go the feet on the desk, out comes the cigar, and away goes our mind on an excursion into realms which have to do with casting still-fishing, hiking, boating, swimming or whatever. Along about 5 o'clock we decide we are tired after a hard day at the office, and go home.

Did you ever know a man in business who had not at least a half dozen things which he has been planning to do whenever he could get the uninterrupted time to sit down and do them—things connected with his job? To free his subconsciousness of these things, to get them straightened out, to adjust them in such a manner that they will not bob up in crowded hours and occasion delay and annoyance, would be a real contribution to the efficiency and smoothness of work in the busy season. Why not do them now?

There is a real sense in which summer may be the season of preparedness for the more intense activities of the fall and winter and spring seasons. It is the time to overhaul plans and think out new ones; to check up on the program and the machinery of operation; to lay lines for the out-of-town folks who will be returning presently with need for your services, your commodities.

IN an actual sense this month of August is a month of preparation for many enterprises; some are alert enough to take advantage of it, others, yielding to the insidious attacks of General Lethargy miss the opportunity.

We are within 31 days of summer's end. In four weeks every boat and bus and train will be pouring its stream of returning vacationers into the city. Throughout the month there will be an increasing trickle of them. Father is coming back to the office; mother to the cares of the household; children to school. Everyone of them represents needs to be supplied.

The Vacation may restore vitality, but there are a lot of things it wears out, such as clothes, shoes, traveling impedimenta, tires, cars. All of that means renewals required.

Right now the makers of automobiles are getting ready to launch their new fall models.

Right now the manufacturers of clothing are preparing for the distribution of their fall and winter weight goods.

Right now the farmer is figuring on the movement of his crops and the prices he will get for them.

Right now the alert business man is shaping his plans and putting things in order to be ready for the revival of business activity which September is certain to bring.

AUGUST is the month to prepare for the harvest. Loafing into September means discounting chances for a profitable fall. If your engine stands idle too long it will get cold and the pick-up will be slow. August is never a dull month for the man who looks ahead. He has taken note of tendencies; he has made his calculations; he has blocked out his campaign; his prospect list has been brought up to date; his publicity matter is ready for the printer or the advertising columns; he is on the door-step of opportunity when the hour arrives to enter; he is doing business while the other fellow is getting ready to begin.

August is often a hot month in these latitudes, but there will be moments of chagrin and disappointment in November and December when you will feel hotter than on any August day if you now neglect the chance for preparation.

Maybe the fact we are in the business of getting out a magazine devoted to mutual insurance has something to do with our thinking on this question. The editor of an all-the-year-round magazine has no slack seasons, no idle months. Moreover he must always be far ahead of the calendar in plans and work. We did not wait

(Continued on page 32)

Life Lights on a Business Background

Balloon Jumping

By S. J. DUNCAN-CLARK

I SAT beside my friend McNulty at the regular weekly luncheon of the Kirolion club last Wednesday.

"Where have you been, Mac?" I asked, "I haven't seen you for a month of Sundays.

"I had leave of absence," he answered, "and I've been across the pond, visiting among the aristocracy."

"I had heard the English aristocracy had come down in the world since the war," said I, "but I didn't know it was as bad as that."

"You're all wrong," replied Mac, taking no offense, "it's not down they've come. They are rising higher than ever."

"How do you make that out?"

"Have you ever heard of balloon jumping?" he asked.

"No," said I, but added quickly, "Come to think of it, yes. I saw an article in a magazine with that title, but I didn't read it. What's it all about? And what has that to do with the rise and fall of the English aristocracy?"

"Much," answered Mac. "It's a new sport over there, and they are all playing it—young and old, male and female. It sounds like a jest, but I saw it with my own eyes."

"Tell me about it," I urged.

AT THAT moment the presiding officer for the day announced that we would all stand and sing the Kirolion anthem, and Bill Ragsdale began pounding out the prelude on the piano. This inspiring ceremony ended, we resumed our seats, and Mac went on with the story.

"The first balloon jumping I saw was on Hampstead Heath, a northwestern suburb of London. I was not expecting anything out of the ordinary, so you can imagine my amazement when suddenly, about 200 yards away, I saw a young woman rise from the ground and come sailing toward me through the air. She was suspended by ropes beneath a balloon which must have been about 18 feet in diameter. A harness of straps was fastened about her waist and around her shoulders, to which the ropes were attached. She passed over my head at a height of some forty feet, and alighted a few yards beyond me, only to bob up again and go sailing on. I watched her disappear in a series of long bounds, in one of which she seemed to scale a barrier of trees, floating over the topmost branches much as a bit of thistle-down might float over a low bush.

"Several minutes later a young man, similarly equipped, came bounding along. He was making higher and longer bounds than the girl. He seemed to be in a hurry, and vanished presently over the same barrier of trees."

I looked at McNulty with reproving eye. "Mac," I said, "there is a by-law of International Kirolion which distinctly forbids any member engaging in the deliberate deceiving of another. I fear I shall have to report you."

"Honest Injun, cross-my-heart," replied Mac fervently. "If ever I told the truth I'm telling it now. If you'll come over to the shop after lunch I'll show you some snapshots I took later at a balloon-jumping field day."

"Proceed," said I, "but if you don't make good on the snapshots, I'm going to have you fined."

"I'll make good, all right," he said, with assurance. "There's not much more to tell, except that this stunt is all the fad over in England, and, I suppose, we'll be doing it here soon."

MAC made good on the snapshots, and I've been turning the balloon-jumping idea over in my mind. I saw an item in the newspaper the other day saying they are going to try out this English sport on Long Island. The more I think of it the more alluring it appears.

It would be a great scheme for crossing the boulevard at the rush hour when traffic is at its worst, or for getting into the ball game without buying a ticket.

The lifting power of the balloon, of course, must be nicely adjusted to your weight, or vice-versa—you can carry ballast. The idea is that it must be capable of lifting you when augmented by the impulse of your leap, and helped by a favoring breeze, but not strong enough to keep you aloft when the impulse is spent. You then float down until your feet touch some resisting object against which they can push for another jump.

But, aside from the pleasurable sporting possibilities which Mac's story suggested, I seemed to find in this new relief for aristocratic ennui a symbolic significance. I have been wondering whether balloon-jumping, in a metaphorical sense, would not be of great value to the business man when he strikes a rough bit of going, or comes up against a high obstacle.

Often all a fellow needs is something which will lift him out of a rut and over the bad spots or the barrier which blocks the way. Perhaps he has been plodding too hard and too long. Maybe a lay-off for a week or two will be just the balloon he requires to give him a new start; or maybe what he needs is to stimulate a jaded imagination by giving his mind a chance to play in some other field of thought than that of business.

I have known a good talk with a wise friend to give me a lift at times which was worth many dollars. At other times I have found the lift in a book, or in music, or in pictures, or in a long walk that carried me out of the city, where its smells and its noises could be forgotten, and the eye could get a longer range. And I have found it in the silence and beauty of some great cathedral, under the spell of the infinite. A new faith and a new courage would come into my soul, and lift me above the minor worries which had seemed big.

Of course, one of the values of the balloon-jump is the fact that it enables you to take a broader view of things; to see what lies about and where the road is bearing. That is a big help. Many of our worst anxieties are due to the all too narrow view we have of life and its relations. We see things too closely and we do not see them in their setting. Little things look bigger than they really are. We need the broader view to give us proportions. You cannot build a house, a business or a life with any real success or ultimate sense of security if your judgment of proportions goes astray.

The more I consider it, the more convinced I am that whether or not we ever indulge in this new English pastime, all of us would be the better for a little more intellectual and spiritual balloon-jumping.

J. J. Fitzgerald in High Position

Elected Secretary-Treasurer of Grain Dealers National Succeeding the Late C. A. McCotter

J. J. FITZGERALD

ONE of the fine characteristics of the late C. A. McCotter was his ability to select able men for important posts in his office. Prominent in the personnel of the Grain Dealers National was J. J. Fitzgerald, who as Mr. McCotter's right hand man for many years, naturally stepped into the secretary-treasurership when the veteran holding that position passed away.

Mr. Fitzgerald's career is a perfect example of beginning at the bottom and, by industry and outstanding merit, rising to the top. After a sound public-school and business-college education, he began work as a stenographer in 1893, in the office of the Saginaw Valley Mutual Fire Insurance Company of Saginaw, Michigan. Those interested in this organization later launched a second enterprise, the Saginaw Valley Fire and Marine Insurance Company, and Mr. Fitzgerald worked for both companies until the Fire and Marine business was taken over by the Hartford in 1899.

SHORTLY after he became assistant manager of the Saginaw Valley Mutual which changed its name to the Michigan Manufacturers' Mutual and moved to Bay City, Michigan.

Subsequently he spent a year in a local agency and a casualty company, and in 1903 he moved to Indianapolis to assist Mr. McCotter in the organization of the Grain Dealers National. From 1902 to 1907 he traveled through Illinois. In 1907 he opened the Southwestern Department at Kansas City, and in 1909 started the Northwestern Department in Sioux Falls.

He moved to Omaha in 1914, taking the position of joint manager of the Western Department, remaining there until 1918 when he returned to Indianapolis as Assistant Secretary and was put in line for the larger honor which has just come to him.

Mr. Fitzgerald's enthusiastic and effective work has made him a nationally known figure in the insurance world, and his large following of friends join in wishing him a continuance of his conspicuous success in his new place of responsibility.

The Journal of American Insurance trusts that Mr. Fitzgerald can find time amid his added duties to continue his contribution of valuable articles both to our pages and to other magazines.

Insurance Almanac In New Edition

INSURANCE men have learned that they must depend on books to a large degree for many details which no one head could possibly carry.

One of the best edited and most useful volumes in this field is the Insurance Almanac and Encyclopedia compiled by the Weekly Underwriter. It is of a size not cumbersome to handle, is well indexed and covers an amazing area of information including Insurance Business, the Officers and Directors of all Classes of Companies, Insurance Department Officials, Associations of Underwriters, Statutory Requirements, Insurance Groups, Brokers' Regulatory Laws, Fire Record of Cities, Workmen's Compensation Laws, Valuations for Life Policies, Motorists' Liability, New Companies, Legislative Sessions, Definitions of Coverage, General Information Concerning United States Government Officials, Population Tables, Directory of Agents, Who's Who in Insurance, Official Changes, Necrology, Statistics, Leading Judicial Decisions, etc.

The 1927 edition has just been published and is an excellent three dollars' worth on any insurance man's desk.

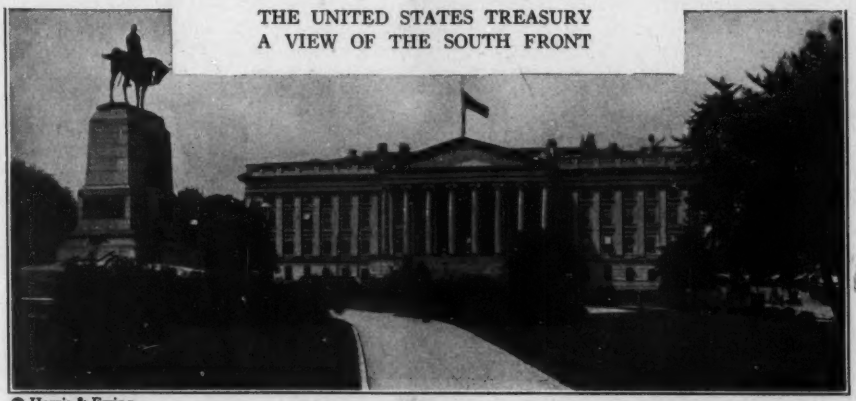
Washington Invites Mutual Delegates

Capital of Nation Will Be At Its Best to Welcome Convention Crowd on September 19th to 22nd

WASHINGTON, D. C., makes the boast that no visitor to the Capital City ever lacks for entertainment or goes away dissatisfied with the opportunities he had had to view some of the most magnificent buildings and the most historic spots in the entire nation. And surely this reputation will be amply justified when the Mutual Entertainment Committee at the big convention in September finishes with its program of little journeys to the multitude of interesting places which cluster around this center of our government. For Washington is something more than the residence of today's President and the meeting place of this year's Congress. Its very atmosphere is charged with the tradition of older epochs. The streets are hallowed by echoes of the footsteps of great men of other times. There is a splendid dignity about the towering trees that have looked down on successive inauguration processions along Pennsylvania Avenue. There is inspiration in the mighty dome of the Capitol and everywhere one looks there is fresh interest for the eye.

General Sherman's Monument in the Foreground Completes A Splendid Picture

THE UNITED STATES TREASURY
A VIEW OF THE SOUTH FRONT



Every Visitor Should See This Depository of the Nation's Millions

© Harris & Ewing

Reference has been made to the Mutual Entertainment Committee, which this year consists of:

Richard Dallam, Chairman, Bel Air, Md.

F. D. Leizear, Secretary, Sandy Spring, Md.

L. Pierce Boteler, Treasurer, 1301 H St., N. W., Washington, D. C.

Executive Committee:

Houston Dunn, Philadelphia, Pa.
Gilbert Pence, Woodstock, Va.
J. A. Gist, Wellsburg, W. Va.
Marvin A. Pierson, Washington, N. J.,

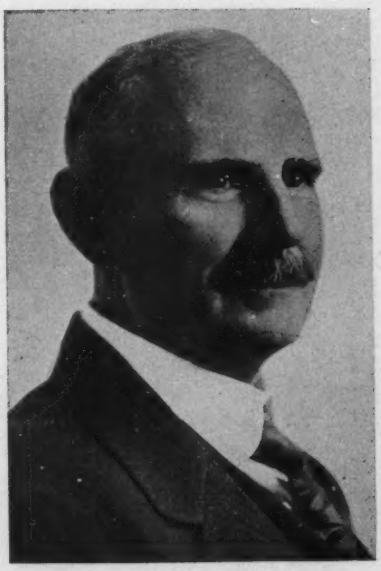
And the Officers.

To give delegates a glimpse of the list of many fine things that the convention offers, the following tentative program is printed. This is not as yet complete as to speakers and minute details, but enough has been settled to guarantee that the coming gathering will be one of the greatest in Mutual history.

PROGRAM

Monday, Sept. 19, 1927

Golf Tournament.
Horseshoe Tournament.
Registration.
Continuing Throughout Day—
9:00 A. M.—Windstorm Conference.
12:00 Noon—Meeting of State Association Officials.
4:00 P. M.—Annual meeting Board of National Association.



F. J. Martin, President, Federation of Mutual Fire Insurance Companies (Left).

C. I. Buxton, President, National Association of Mutual Insurance Companies (Right).

7:30 P. M.—General Meeting of Association and Federation.

At this session the President's address, Secretary's and Treasurer's reports, report of General Counsel, other reports and appointment of committees.

Tuesday, September 20

9:00 A. M.—First Day's Session Federation. Group Meetings.

1:00 P. M. to 7:30 P. M.—Open.

7:30 P. M.—General Meeting of Association and Federation.

Wednesday, September 21

9:00 A. M.—Second Day's Session Federation. Group Meetings.

1:00 P. M. to 7:30 P. M.—Open.

7:30 P. M.—General Meeting of Association and Federation.

Election of officers and speeches by men of national prominence.

It will be noted by many that the golf and horse shoe tournaments occupy a prominent place in the schedule of events. One of the best of the many excellent courses for which Washington is famous will be thrown open to the mutual enthusiasts interested in these two sports, and keen rivalry for the honor of winning prizes is expected to develop. It will be remembered that the tournaments last year at Louisville attracted large attention and the winners were:

Low Gross—Grain Dealers Natl.—Cup Won by Geo A. McKinney of Alton, Ill.

Low Net — Houston Dunn — Cup Won by J. M. Cook of Mansfield, Ohio.

Other winners were—

C. M. Purmort, Runner Up.
C. A. L. Purmort, Runner Up.
Arthur Opgenorth, Match Against Par.
F. E. Walt, Odd Holes.
Barbee Betts, Even Holes.
Eugene Arms, Fewest Putts.
R. S. Danforth, 1st Blind Bogey.
Glen Walker, 2nd Blind Bogey.
H. B. Carson, 3rd Blind Bogey.
Geo. MaDan, Consolation Prize.

Many of these experts will be on hand this year and doubtless those who lost in 1926 have been practicing up to give the heroes of last October a run for the handsome line of trophies to be offered in Washington.

Those who wish to enter the coming Tournament should fill out the entry blanks which will be found on Page 32 of this issue.

As promised in last month's issue, we continue our description of various points of major interest about Washington. Of these, the Washington Monument is always a favorite rendezvous for sightseers.

Aztec Garden Nearby the Pan-American Union Building, and Washington Monument in Distance

The Famous Botanic Gardens Are Alone Worth a Trip to Washington to See

Washington Convention

(Continued from preceding page)

The idea of a suitable memorial to George Washington originated at the close of the Revolutionary War, although the cornerstone of the present monument was not laid until July 4th, 1848. From 1856 to 1876 work was suspended for lack of funds, and it was not until 1884 that the capstone was placed into position.

The shaft of the Washington Monument is the tallest work of masonry in the world, reaching a height of 558 feet at its apex. It is visible from every point of the compass around Washington, and from its observation room the visitor may enjoy a most wonderful panorama of parks and streets, with the rolling hills of Virginia and the winding shores of the Potomac stretching far into the distance.

Inside the shaft are blocks of marble sent by the several states, various corporations and societies, and foreign countries. Each block has an inscription telling from whence it came. There is one from the ruins of the Parthenon—a gift from Greece—and a stone from William Tell's chapel which Switzerland contributed.

The Washington Monument is something far more than an unusual work of masonry, as it is commonly adjudged. It is truly a work of art of which a commission of America's foremost artists has said, "Taken by itself, the Washington Monument stands not only as one of the most stupendous works of man, but also as one of the most beautiful of human creations. Indeed, it is at once so great and so simple that it seems to be almost a work of nature."

THE PAN-AMERICAN BUILDING

ONE of the smaller, yet one of the most beautiful buildings in Washington, its detail of construction and finish is a blending of the Spanish and Portuguese, the French and the English. The two heroic statuary groups at the front of the building represent North America and South America. The interior corridors and rooms are remarkable for their beauty and artistic decorations. Beyond the main building is an annex of unique design but harmonizing with the main structure and its surroundings.

The building cost over $1,000,000, the amount being contributed by the late Andrew Carnegie and the twenty-one American nations, including the United States, forming the Union. It serves as a home for the great principle of Pan-American unity of interest, and a practical office for the development of Pan-American commerce and friendship. It is, in a sense, a Capitol of all the American Republics in the Capitol of the United States.

The Pan-American building was used by the conferees of the Limitation of Armaments Conference and later by the representatives of Chile and Peru to settle a longstanding boundary dispute in which the United States acted as intermediary. The Hall of the Americas served as a general conference room while the smaller rooms were used as private council chambers.

The Hall of the Americas is the setting for many a brilliant social function of a semi-diplomatic or international nature. Its crystal chandeliers, when lighted, are reflected in the perfect mirror of the floor.

One enters the Pan-American Union and steps into the patio amid its parrots and palms, monkeys and coffee trees, exquisite tiles and feathered serpents' heads, spouting water — an amazing and delightful experience.

This tropical dominated entrance is the talk of visitors and sometimes overshadows the many other interesting features of the building.

In the grounds west of the building is the Aztec Garden, its central object a pool, presided over by a heroic size figure of the famous "Sad Indian," reputed to be the most prized relic of the Aztecs.

Not the least of the reasons for the remarkable beauty and interest in the building is the versatility of the motifs and architecture throughout the structure. While the patio is of the southern or Latin motif, the Hall of the Americas shows distinctly the Northern influence, its high fluted columns reminiscent of Colonial severity, though its classic lines do reflect the period of the French Empire.

In the southeastern corner of the grounds once stood the famous Burns Cottage, in which Washington and L'Enfant, the noted French Engineer, laid out the original plans for the City of Washington more than one hundred years ago.

THE State, War and Navy Building is on part of the reservation known as the "President's Grounds." The structure, built in the style of the Italian Renaissance, is of great size. It has more than five hundred and fifty rooms and over two miles of corridors.

On the second floor of this building is the magnificent diplomatic reception room in which the Secretary of State receives foreign ministers and ambassadors. Whenever the President, in his official capacity, has any message for a representative of a foreign government, or a foreign ruler, or the governor of one of the States, that message is conveyed to such a person by the Secretary of State in this room.

The Great Seal of the United States is kept in this building, along with many other objects of great interest to the visitor. This seal is placed on laws and documents after they have been signed by the President, making them valid and operative. The Great Seal is never placed on any document or law until the President has signed it.

Since the Navy Department now occupies a building of its own at Eighteenth and B Streets, some of the interesting exhibits that formerly were to be seen in the State, War and Navy Building have been removed to the new Navy Building. Especially interesting is the exhibit of model battleships, showing the types of fighting craft used in the various stages of our naval history. In the Munitions Building, also at Eighteenth and B Streets, the visitor may see a similar exhibit showing development of our military service, consisting of figures dressed in the various uniforms worn by our soldiers in the past, and of a collection of firearms of every description, from the old flint lock to the modern magazine rifle.

WE remind Mutual people again that travel to Washington is heavy at all times, and for the most convenience, it would be desirable to make reservations now. This will not only insure the best accommodations, but will greatly assist the Committee in making their plans for entertainment.

Do not forget when buying your ticket to Washington, D. C., to insist that the agent give you a certificate for the convention of the National Association of Mutual Insurance Companies. If he cannot give you a

(Continued on page 22)

Property and Casualty Insurance

(Continued from page 10)

finance his customers or he is being financed in part by the manufacturer of the goods which he handles. In either event, the banker or the manufacturer will be subjected to risk in their dealings with the wholesaler. Such risk, however, can be shifted to an insurance company, so that no matter what happens the wholesaler will be able to meet his obligations and the chances of loss to the banker and the manufacturer are thus correspondingly reduced.

Another example of the indispensability of fire insurance in certain business transactions is found in connection with mortgage loans on real estate. It has been estimated that something like sixty per cent of the value of permanent improvements on real estate is carried out with capital obtained by mortgage loans on the property so improved. Without the fire insurance policy to cover the interests of the mortgagee these loans could not safely be made. It is taken for granted nowadays that when John Doe mortgages his house and lot to another party that a fire insurance policy will be bought at once to cover the interests of both the mortgagee and the mortgagor in the mortgaged property. Without the fire insurance policy as support to the mortgage note, loans on real estate would not only be much more costly than they are at present, but the mortgagee would feel far less secure in his business transactions. We may go even further than this and say that, without fire insurance, loans on real estate would be very difficult, if not impossible, to obtain.

ANOTHER example of the indispensability of insurance in modern business is furnished by considering a relatively common transaction in foreign trade where marine insurance is purchased. In a sale of goods on credit to a merchant in a foreign country it is the practice under certain credit arrangements for four documents, technically known as the "commercial set," to be assembled. These are the invoice, the bill of lading, the bill of exchange, and the certificate of marine insurance. In assembling the documents representing and securing the shipment in question, it is inconceivable that the certificate of marine insurance should not be included. It is, in fact, the document which covers the hazards involved in the shipment, and without the guarantee of indemnity which the insurance furnishes, it is almost out of the question to think of the shipment of goods being forwarded.

The fundamental importance of property insurance when a loan is desired on the security of warehouse receipts is a common place in the business world. Our present-day methods of marketing many kinds of produce necessitate that the surplusage of these goods should be stored for a longer or shorter time in the warehouses or in cold storage plants. This is true of grain, textiles, perishable farm products, and so on. It is a common practice for merchants and others to use the warehouse receipts for such goods as collateral for a loan. A requirement, however, in practically one hundred per cent of the cases is that the goods in the warehouses, which are actually the basis of the loan, should be covered by one or more forms of property insurance—fire insurance, for example. Without such insurance the extension of credit on the part of the bankers to the holders of warehouse receipts would be scarcely conceivable.

There are many other instances of the indispensability of insurance in modern business but only brief mention may be made of a selected few in passing.

WITHIN recent years there has been a marked expansion of title insurance in this country. This form of coverage is a great support to the real estate business, particularly in those parts of the country where real estate values are very great, as, for example, in the most desirable parts of our largest cities. In the case of the transfers of such property, involving sums which run up into the millions of dollars, it has become customary to require that the title to the property be insured. Without such insurance, the business of the larger real estate operators would be greatly hampered, for uncertainty with respect to title would be sufficient in many instances to absolutely stop the purchases of real estate where large sums are involved. Again, credit insurance, though relatively little known about because of its specialized nature and of its limited application, is also coming to be an important factor in the wholesale trade. Its aim is, of course, to bring about greater stability in wholesale credit transactions, and anything which works toward the stabilization of business is to be commended.

Finally, it may be observed that practically every form of property and casualty insurance tends to lend a certain security to the business enterprises involved in the contracts written. This is because the insurance contract negotiated, whatever its form, results in substituting in the place of the possibility of a large loss that may or may not occur, the certain payment of a small definite amount which is only an immaterial fraction of the possible loss that the insured might suffer. This smaller certain payment is called the insurance premium and is turned over to an insurance company for assuming the risk of the insured as indicated above, namely, the possibility of suffering a large loss if a certain event, entirely unpredictable in an isolated case as to its happening, should actually happen. In other words, for the payment to an insurance company of a small amount periodically (each year, for example), by the business concern, the insurance company would agree to settle for the large amount if the insured should happen to meet such loss. Uncertainty as to the future with respect to fire, accident, loss of title, losses from unfortunate credit extension, and so on, are causes of worry to business men. The fact that such losses can be shifted to insurance companies for a small consideration is a great boon to the business man in that his mind is thereby left free from worry to direct its best efforts upon managing his business.

IN CONCLUSION, it is impossible to over-emphasize the indispensability of the service of insurance to business, although there are relatively few people who have a proper appreciation of the service rendered. It may very well be that this is due to the numerous types of insurance and of insurance companies with a consequent failure of the insurance organizations themselves to boom in a general way the institution of insurance as an aid and support to other forms of business enterprises. On the other hand, the lack of public appreciation of the service of insurance may be attributable to the very technical character of certain types of insurance and to the consequent lack of knowledge on the part of the public of fundamental insurance. But whatever may be the

(Continued on page 31)

Here Are Winners of Essay Contest

Judge's Choice of Manuscripts Dealing With the Subject "What Is Fire Insurance" Is Announced

WE are happy to announce the winners of the contest for best essays on "What is Fire Insurance," a competition started some four months ago, and sponsored by the Millers Mutual Fire Insurance Company of Fort Worth, Texas.

The papers submitted have been of an interesting type and the decision of the judges was a matter which required considerable study. Those who are not represented in the prize test should not feel discouraged, for every manuscript had many points of merit.

MEANWHILE it is with much pleasure that the following names are printed as those whose essays deserve the highest honors:

First Prize: A. J. Kellenberger, Seattle, Washington.

Second Prize: Ben C. Vine, Alton, Illinois.

Third Prize: H. K. Stafford, Alton, Illinois.

Mr. Kellenberger's essay is printed below:

FIRE INSURANCE is that great equalizer by which means the prudent business man shares the fire loss burden of his equally prudent, but unfortunate brother.

It collects a reasonable amount of premium, commensurate with the risk assumed, uses a small proportion to pay the necessary expenses of the business and deposits the balance at a centralized point awaiting the inevitable day when it will be called upon to re-establish the prudent business man in his chosen line of work, or rebuild his home.

In no sense can it be construed as a tax but on the contrary is purely a sinking fund, created solely for the purpose of providing security for replacement of values destroyed.

The insurer, who sustains a loss, shares in the distribution of the general fund according to the equity of his contribution thereto, so that he who assumes a just and equitable proportion of the premium charge will share in the distribution in like ratio.

Editorial Note:

In the light of this contest it would be interesting to speculate on what answers would be received if a competition were held having for its subject the selling talk that is actually given to a prospective policy-holder.

PRIZE WINNERS

In the Journal of American Insurance Essay Contest Sponsored by the Millers' Mutual Fire Insurance Company of Fort Worth, Texas

FIRST PRIZE OF $50.00

A. J. KELLENBERGER of Seattle, Wash.

SECOND PRIZE OF $35.00

BENJAMIN C. VINE of Alton, Ill.

THIRD PRIZE OF $15.00

H. J. STAFFORD of Alton, Ill.

Checks for the above amounts have been mailed to Messrs. Kellenberger, Vine and Stafford, with our congratulations.

JOURNAL OF AMERICAN INSURANCE

Anyone who writes a definition is likely to feel that it is necessary to be somewhat academic, and thereby some of the spontaneity of real salesmanship is lost. Doubtless it is true that many a masterpiece of literary construction is produced when problems are explained to prospects in the field. When the brain is working logically, the spontaneous answer is always better than when the speaker studies for effect. But, alas, of course, good logic is rare, and even when these gems of definition do drop from the lips of insurance men, there is likely no stenographer to take down their pearls of wisdom. Perhaps it is just as well to stick to the scholarly form.

At any rate the present contest has done a great deal of good in bringing the best efforts of bright minds of the mutual insurance world to bear on a common problem.

Forest Fire Loss Is Gigantic

(Continued from page 8)

RAILROADS whose lines run through thickly wooded areas are also subject to the inspection of forest rangers. Adequate spark arresters do much towards the prevention of blazes, started by sparks from the engine. In 1925, 8,672 fires were started by railroads, in 1924, 8,431 fires and in 1923, statistics show 8,666 fires traced to the same source. The invariability of the figures for a period of years definitely shows that some drastic measures must be taken to decrease fires caused by railroads. Governmental authorities suggest oil burning engines as more desirable for use on lines running through forest lands, but so far, not much progress has been made in this direction.

There is still an almost unmeasurable amount of work to be done in safe-guarding our forests from fires. Foresters have estimated that every country in order to meet its own timber and wood needs should have one-third of its land area in forests. Today, we have 138,000,000 acres of virgin forests, 250,000,000 acres of cut-over land, or a total of 388,000,000 acres of really valuable timber producing land, one-fifth of the total land area of the United States. Figures speak more forcefully than conclusions drawn even by the most experienced rangers. With only ordinary cooperation on the part of our great American public, and with the utilization of modern inventions, forest fires must be decreased.

Insurance in France

(Continued from page 13)

variations. Then again, the instability of prices caused manufacturers to keep their stocks down to the lowest possible figure, with consequent reduction in the volume of insurance business.

The devalorisation of the franc has also been responsible, indirectly at any rate, for a keener competition after business, followed by the cutting of rates. Its effect in the fire business may be seen from the following examples supplied to me from a reliable source. Petroleum stocks for which a premium of 7.50 frs. per thousand was required in 1923, can now be insured for 2.50 frs. to 5 frs. per thousand. Sprinkler flour mills have fallen from 7 frs. to 9 frs. per thousand in 1923 to 3.50 frs. to 4.50 frs. per thousand, with 4 frs. as a normal figure. Sprinkler cotton mills were at 2 frs. or 2.30 frs. per thousand but are now accepted at 1.25 frs. and even as low as 0.80 per thousand. On the whole, it may be said that, although rates have been tightened up where possible to compensate for the more generous cover furnished, insurance business is said to be less profitable for the companies engaged in it. Still, the bread they earn is wonderfully buttered.

There are 30 Mutual Companies who limit themselves exclusively to the insurance of crops against damage from hail and also the resulting loss of profit. There are also 47 Stock Companies which transact business in this particular branch. Owing to the economical working of the French Insurance Department, there is a general complaint at the delay in the publication of the official figures. At the time of writing the 1926 figures are not available and the figures for 1925 I failed to find in a form suitable for easy comparison of the operations of the Stock and Mutual Companies. The Editor of the L'Argus, however, has kindly given me a concise table of the figures for Hail Insurance for 1925 which I reproduce below. It will be noted that the premium per cent in the Stock Companies on the capital sum insured is more than double that of the Mutuals. The reserve fund of the Mutuals is double that of the Stock Companies. But please note the losses. In the Stock Companies they are more than double those in the Mutuals. Almost invariably I find that the moral hazard in Stock Company Insurance is greater than that in a well-managed Mutual. This point is important. It is all very well for the Stock Companies to organize a campaign for the prevention of losses, but the farmer is thinking, though he may not be talking, "You want me (he thinks) to avoid losses and to cut down my claims so that your stockholders may receive a bigger dividend. I have paid the full price for my insurance and I mean to get my full value out of it." And is the farmer any different from other people? Though there is sound merit in the appeal to avoid losses, it will never cut much ice even to talk of the national interest when this may be interpreted by the insuring public to mean the interest of a few stockholders.

Figures for Hail Insurance for 1925:

	Stock Companies Francs	Mutuals Francs
Capital Sum Insured	2,229,121,500	2,006,736,655
Premium	53,227,478	21,945,410
Losses	30,169,249	11,354,003
Reserve Fund.	16,735,841	34,939,728

THE insurance of live stock is dominated by the Mutuals, most of them regional, and three Stock Companies. The combined premium in 1924 amounted to 2 million francs, claims to 16 million francs. The total reserve amounts to 8 million francs. The big Stock Companies have been rather shirking this business, haunted by memories of epidemics in the past. The progress of the art of the Veterinary Surgeon, scientific discoveries, the sanitary inspectors and other agencies now provide, M. Sumien thinks, sufficient safeguards against the spread of disease. The recurrence of the epidemics of the past are not probable. In fact, it is stated with confidence that the insurance of cattle now possesses a rational and scientific basis and can become profitable.

Accident Insurance including Workmen's Compensation occupies an important position in France. Last year there were 188 Companies doing Accident business, the premiums of which (in 1925) amounted to fourteen hundred million francs. This includes nine hundred million francs for Workmen's Compensation. The claims amounted to 614,000,000 frs., Commission and expenses 335,000,000 frs., and the total reserve to seventeen hundred and twelve million francs. This branch of insurance continues to develop. Burglary insurance is also carried on by the Accident Companies, though a few special companies limit their operations to Burglary insurance only.

There are 12 companies, of which 5 are foreign, specializing in the insurance of windows, plain and stained, mirrors and marble.

(To be continued.)

Washington Convention

(Continued from page 19)

certificate get a signed receipt. If we have 250 or more of these certificates the delegates who have them will be entitled to half fare on the return trip if the same route is taken as used on the going journey. If you do not intend to return over the same route, think of those who do want to take advantage of the half fare returning.

The Federation will be glad to make reservations from Chicago to Washington on either the Capital Limited of the B. & O., or the Liberty Limited of the Pennsylvania.

Or if you choose to make your reservations direct, address Mr. P. C. Benedict, Asst. Gen. Passenger Agent, B. & O. R. R., Room 607, 112 W. Adams St., Chicago, or Mr. A. W. Keene, Passenger Representative, Room 524, Union Station, Penn. R. R., Chicago.

Those desirous of viewing the really splendid scenery along the way, which includes mountains, and majestic rivers, and such interesting places as Harper's Ferry and other spots of Civil War celebrity on the banks of the Potomac, may leave on a late afternoon train, arriving in Washington the next afternoon.

Heredity Up to Date

"Isn't that a lively child Why, he's as spry as a goat."

"That's only natural. His father and mother were both pedestrians."—*Life.*

One More Effort Needed

"I can't remember the words of that new song," said the girl.

"That makes it easier," returned her father. "Now all you've got to do to make home happy is to forget the tune."—*Boston Transcript.*

Promotion

"The boss offered me a sort of partnership in the firm today."

"No!"

"Yes, he said if I didn't take an interest in the business, he'd can me."—*New York American.*

The Rainfall Hazard

Fundamental Factors Related to This Weather Risk and Their Practical Application to Underwriting

By COLONEL JOHN P. FINLEY
Consulting Meteorologist and Manager National Storm Insurance Bureau, New York City

Article IV. Rainfall Diurnals.

FIFTH SECTION.

PLATE No. XII presents somewhat of an ideal cartographical representation of the mechanism of the cyclonic circulation that has given rise to the excessive and continuous rainfall that has spread over the drainage areas of the Mississippi Basin, and brought down upon the Central Trough the greatest flood in the history of the United States. This cyclonic LOW entered the United States over the South Pacific Coast District on March 24th, 1927, advancing northward along the Central American and Mexican-Type Paths, with a barometer under 29.90. By the morning of March 25th the LOW was central over southern California, western Arizona and southern Nevada, with a barometer under 29.80, attended with heavy cloud formation and local rains.

During the 26th and 27th the LOW was held about stationary by a pronounced anticyclonic HIGH of over 30.40, central in northern Illinois. In this stationary position on March 28th it was joined by another LOW coming in from the South Pacific Type Path, giving general rains over southern California. These type paths are clearly indicated on Plate No. XII. As the HIGH moved eastward to the Atlantic, the south Pacific LOW was released by another LOW advancing southward from the Aleutian Type Path, with a barometer under 29.50. The coalesence of these several LOWS on March 30th and 31st was attended with general rains and local storms throughout California, the Middle and Southern Plateau regions, and in the Southwest eastward to Arkansas.

By the morning of April 1st, 1927, the combined LOWS became central over the area marked by the junction of the states of Kansas, Nebraska, Missouri and Iowa. The barometer had fallen under 29.40 and excessive rains were general throughout the Middle Mississippi Basin. St. Louis reported three inches in less than twenty-four hours. Plate No. XII pictures the LOW at this point in its eastward course, one of the most powerful and extensive LOWS of the season. Its major diameter extended east and west from central Colorado to the North Carolina coast, and its minor diameter, from the Gulf to the Upper Lakes. In the southern sector the winds are veering through the south, from southeast to west, and in the northern sector, the winds are backing through the north, from northeast to west. Such LOWS would cause an enormous deposit of storm-water over the western and eastern tributaries of the Mississippi Basin, the flood effect of which would continue for weeks before it could escape to the Gulf of Mexico. There is an endless procession of these LOWS over the Pacific from two general sources of supply, viz.: From the China Sea and the East Indies, along the northeastern course of the Japanese Current, the northern line of approach to the United States via the Aleutian Type Path. Second, the southern line of approach developing over the Revillagigedo Islands, just north of the equator, and southwest of the Gulf of California, entering the United States via the Central American and Mexican Type Paths.

THE efforts now being made to plan for reclaiming the submerged area of the Great Mississippi Basin from the destructive onslaught of its tributaries, when in flood, will, perforce, necessitate the consideration of the many and nation-wide interests involved, and probably result in the adoption of a composite system of treatment. The whole country will be interested in the plans and their practical application. When the Florida hurricanes of September and October, 1926, caused a phenomenal and overwhelming loss of about $250,000,000, the effect of the immense damage was registered almost directly in the counting-rooms, factories, insurance agencies, sales depots, exchanges, building, realty and food markets of the entire country. How much greater and more serious has been, and will be, the reflection from the unparalleled Mississippi disaster, the depressing effect of which will not disappear until an absolute and all-round satisfactory solution has been applied with good results. Then commercial and financial values, confidence and stability will return in the restoration of normal business. The problem is not too difficult or technical for average minds to comprehend and some valuable suggestions may come from this class of workers and thinkers.

Carefully study the chart of Plate No. XII. Observe the inexhaustible source of rain supply, how the mechanism of cyclonic action grinds out atmospheric precipitation at the headwaters of the tributaries, and the watersheds hasten the run-offs to the Central Trough. Too much water is delivered simultaneously into that channel and seeks to find its way to the sea all at once. Unrestrained nature provided the Great Mississippi Basin for this work and it was ample and satisfactory, both in flood and in drought; but man comes on the scene and preempts the overflow ground, and his artificial limitations are overwhelmed by the pent-up waters sent from the clouds, for his benefit through navigable streams and the watering of thirsty lands. This is not a fair division of rights and man is obligated to provide a way for the storm-waters to perform their mission on land and then return, in that endless round to the sea, to begin again the service to all forms of life, through the agency of solar radiation.

If nature had made the Mississippi a direct-bee-line water-way from St. Louis to the Gulf, the piling up of flood crests in the Central Trough, from tributary head-water overflows, would have been reduced to a minimum, if not entirely eliminated, and, in effect, would have given full play to a natural jetty system, resulting in the scouring out of the Central Trough, overcoming the silting-up process on the trough base, and increasing the second-feet flow to probably 4,500,000. To form some idea of this discharge volume, comparison should be made with the discharge of the Niagara River at 210,000 second-feet.

To overcome the frictional retardation in stream flow and lag in the

DAYS OF WEEK	FIRST SECTOR FROM S		SECOND SECTOR FROM E		THIRD SECTOR FROM S		FOURTH SECTOR FROM W		FIFTH SECTOR FROM NE		SIXTH SECTOR FROM SE		SEVENTH SECTOR FROM SW		EIGHTH SECTOR FROM NW		DAILY TOTALS DIRECTION	DAILY TOTALS RAINFALL	DAYS OF WEEK	DAILY PREVAILING DIRECTION DAYS OF WEEK	WEEKLY AND MONTHLY AVERAGE DIRECTION
	TIMES-NO.	DAYS-DATE	TIMES-NO.	DAYS-DATE	TIMES-NO.	DAYS-DATE	TIMES-NO.	DAYS-DATES	TIMES-NO.	DAYS-DATES	TIMES-NO.	DAYS-DATES	TIMES-NO.	DAYS-DATES	TIMES-NO.	DAYS-DATES	TIMES-NO.	DAYS-NO.			
SUNDAY	1	27	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	1	18,27	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	8	5	SUNDAY	S AND SE	
MONDAY	ZERO	ZERO	1	22.6	ZERO	ZERO	1	6,27	1 1	9,27,28,12	ZERO	ZERO	ZERO	ZERO	1 1	9,11,29	4	11	MONDAY	NE	
TUESDAY	ZERO	ZERO	1	1,16	ZERO	ZERO	1	1,21	1	11,21	ZERO	ZERO	ZERO	ZERO	1	7,16	4	8	TUESDAY	NE AND NW	MAY NE.
WEDNESDAY	ZERO	ZERO	1 1	8,31 18,27	ZERO	ZERO	1	8,29	1 1	27,28,29 12, 4	ZERO	ZERO	ZERO	ZERO	1	20,31	6	13	WEDNESDAY	N AND NE	
THURSDAY	1	21,22	1	7,16	ZERO	ZERO	1	21,7,4,18	1 1	1,22,18,8	ZERO	ZERO	ZERO	ZERO	1	1, 4	7	14	THURSDAY	NE	
FRIDAY	1	10,11	1	14,22	ZERO	ZERO	1 1 1	5,10,14,21,10 28	1 1	4,25,3	ZERO	ZERO	ZERO	ZERO	1	21,29	8	15	FRIDAY	N	
SATURDAY	ZERO	ZERO	1	8,24	ZERO	ZERO	1 1 1	10,17,24,18 24.	1 1 1	21,30,24, 22,10	ZERO	ZERO	ZERO	ZERO	1 1	21,24,8,12	9	16	SATURDAY	NE AND N	
MONTHLY TOTALS BY SECTORS	5	5	7	14	ZERO	ZERO	11	21	13	25	ZERO	ZERO	ZERO	ZERO	8	15	62	80	7	62 DIRECTIONS	
MONTH OF JUNE.									MONTH OF JUNE								MONTH OF JUNE				
SUNDAY	ZERO	ZERO	1 1	6,13,3,18	ZERO	ZERO	1 1	6,29,3,8	1	18,27	ZERO	ZERO	ZERO	ZERO	1 1	2,13,6,27	7	14	SUNDAY	N AND NW	
MONDAY	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	1 1	10,19,5	ZERO	ZERO	ZERO	ZERO	1 1 1	12,15,17,25	5	7	MONDAY	NW	
TUESDAY	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	1	8,29	1 1 1 1	18,25,6,29 22,26	ZERO	ZERO	ZERO	ZERO	1 1	6,13,35	7	11	TUESDAY	NE	JUNE WNW
WEDNESDAY	1 1	7,8,6.	1	6,8,1	ZERO	ZERO	1 1 1 1	7,21,5,26 7,21,4,25	1 1 1	7,26,21,6,4	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	10	18	WEDNESDAY	W	
THURSDAY	ZERO	ZERO	1	6,22	ZERO	ZERO	1 1 1	15,22,17 24, 1, 7	1 1	16,22,1,24	ZERO	ZERO	ZERO	ZERO	1 1	6,14,17	8	15	THURSDAY	W	
FRIDAY	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	1 1	4,25,20,27	1 1 1 1	14,4,20,25 20,29,2,27	ZERO	ZERO	ZERO	ZERO	1 1	8,14,20,29	8	16	FRIDAY	NE	
SATURDAY	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	1 1	3,17,16,30	1 1 1 1	18,29,7,5 17, 3	ZERO	ZERO	ZERO	ZERO	1	7,17	7	18	SATURDAY	NE	
MONTHLY TOTALS BY SECTORS	2	3	4	8	ZERO	ZERO	14	28	20	35	ZERO	ZERO	ZERO	ZERO	12	20	58	98	7	58 DIRECTIONS	
MONTH OF JULY.									MONTH OF JULY								MONTH OF JULY				
SUNDAY	1	21,22	1 1	14,28,6	ZERO	ZERO	1 1 1	14,21, 6 20,15,22	1 1	14,30,16,20	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	9	16	SUNDAY	W	
MONDAY	1	27,28	1	9, 31	ZERO	ZERO	1 1 1	10,31,12,19 24,	1 1	8,27, 3,19	ZERO	ZERO	ZERO	ZERO	1 1 1	9,17,28,2,15	10	19	MONDAY	W AND NW	
TUESDAY	1 1	21,18,19	1 1 1	5,26,22,30 8,24	ZERO	ZERO	1 1 1 1	3,10,17,14,21 3,30,18,24	1 1	14,17,19,22	ZERO	ZERO	ZERO	ZERO	1	21,25	12	24	TUESDAY	W	
WEDNESDAY	ZERO	ZERO	1 1	21,23,26,29	ZERO	ZERO	1	21,29	1	14,31	ZERO	ZERO	ZERO	ZERO	1 1	19,29,26,31	6	12	WEDNESDAY	NW AND N	JULY WNW AND ENE
THURSDAY	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	1	11,23	1 1 1 1	11,25,15,23 15,11,28,13	ZERO	ZERO	ZERO	ZERO	1 1 1	11,29,11,22 15, 31	8	16	THURSDAY	NE	
FRIDAY	1	28,29	ZERO	ZERO	ZERO	ZERO	1 1 1	16,25,14 21,16,29	1 1 1	14,25,21 18,16	ZERO	ZERO	ZERO	ZERO	ZERO	ZERO	7	15	FRIDAY	W AND NE	
SATURDAY	1	13,14	ZERO	ZERO	ZERO	ZERO	1 1	15,19,1,8	1 1 1	12,25,14 17, 1,19	ZERO	ZERO	ZERO	ZERO	1 1	8,25 12,17	8	16	SATURDAY	NE	
MONTHLY TOTALS BY SECTORS	6	11	8	16	ZERO	ZERO	18	35	17	33	ZERO	ZERO	ZERO	ZERO	11	21	60	116	7	60 DIRECTIONS	
GRAND TOTALS BY SECTORS	11	19	19	37	ZERO	ZERO	43	84	50	92	ZERO	ZERO	ZERO	ZERO	31	56	164	288	21	164	

PLATE No. XIII.—Direction and Frequency of Rainfall Spread—Details. Correlation by Months and Sectors for a Period of 20 Years (1905 to 1924, Inclusive) for a Tenth of an Inch or More of Rainfall (2 P. M. to 9 P. M.), at the U. S. Weather Bureau Station, New York City.

Observations Made by Automatic Self-Recording Raingage and Checked with a Direct-Measurement Non-Recording Raingage. Both U. S. Weather Bureau Standard Instruments Located on the Roof of the Station Building, New York City, 394 Feet Above Sea Level. Values Transferred from Spaced and Timed Instrument-Record-Sheets After Being Converted into Comparable Figures and Verified for Tabulations.

Remarks—"Times" Show Daily Changes in Direction of Rainfall Spread. "Days" Show Daily Changes in Rainfall Occurrence. "Zero" Shows Daily Absence of Rainfall Spread in the Sectors Indicated. The Maximum Rainfall Occurrence is in the N. E. Sector for All Months. The Average Maximum Rainfall Spread Is from the N. E. in All Months. On Saturday in Each Month the Rainfall Spread Is from the N. E. In General the Day of the Week Is an Immaterial Factor in Both Rainfall Spread and Rainfall Occurrence.

MONTH	YEARLY PERIOD	FIRST SECTOR FROM S		SECOND SECTOR FROM E		THIRD SECTOR FROM S		FOURTH SECTOR FROM W		FIFTH SECTOR FROM NE		SIXTH SECTOR FROM SE		SEVENTH SECTOR FROM SW		EIGHTH SECTOR FROM NW		MONTHLY TOTALS BY SECTORS DIRECTION TIMES NO.	MONTHLY TOTALS BY SECTORS RAINFALL DAYS NO.	MONTHLY MEAN DIRECTION
		TIMES-NO.	DAYS-NO.	TIMES-NO.	DAYS-NO.	TIMES-NO.	DAYS-NO.	TIMES-NO.	DAYS-NO.	TIMES-NO.	DAYS-NO.	TIMES-NO.	DAYS-NO.	TIMES-NO.	DAYS-NO.	TIMES-NO.	DAYS-NO.			
MAY	20 YEARS	3	5	7	14	ZERO	ZERO	11	21	13	25	ZERO	ZERO	ZERO	ZERO	8	15	42	80	NE
JUNE	20 YEARS	2	3	4	8	ZERO	ZERO	14	28	20	34	ZERO	ZERO	ZERO	ZERO	12	20	52	93	WNW
JULY	20 YEARS	6	11	8	15	ZERO	ZERO	18	35	17	33	ZERO	ZERO	ZERO	ZERO	11	21	60	115	W
TOTALS	60	11	19	19	37	ZERO	ZERO	43	84	50	92	ZERO	ZERO	ZERO	ZERO	31	56	154	288	154
AVERAGES	20	3.7	6.3	6.3	12.3	NONE	NONE	14.3	28	16.7	30.7	NONE	NONE	NONE	NONE	10.3	18.7	51.3	96	51.3

PLATE No. XIV.—Direction and Frequency of Rainfall Spread—Summary. Correlation by Months and Sectors, for a Period of 20 Years (1905 to 1924, Inclusive) for a tenth of an Inch or More of Rainfall (2 P. M. to 9 P. M.) at the U. S. Weather Bureau Station, New York City.

Observations Made by Automatic Self-Recording Raingage and Checked with a Direct-Measurement-Non-Recording Raingage. Both U. S. Weather Bureau Standard Instruments Located on the Roof of the Station Building, New York City, 394 Feet Above Sea Level. Values Transferred from Spaced and Timed Instrument-Record-Sheets After Being Converted into Comparable Figures and Verified for Tabulations.

Remarks—The Direction of the Rainfall Spread Is Developed from the Daily Rainfall Graphs, Plates I to VII, Inclusive. The Underwriting Importance of the Rainfall Spread Is Discussed in Article No. II of This Series. The Symbol "Zero" Shows That No Rainfall Spreads from the S. SE. and SW. Sectors of the Rainfall Area. Both Rainfall Spread and Rainfall Occurrence Increase Gradually from May to July.

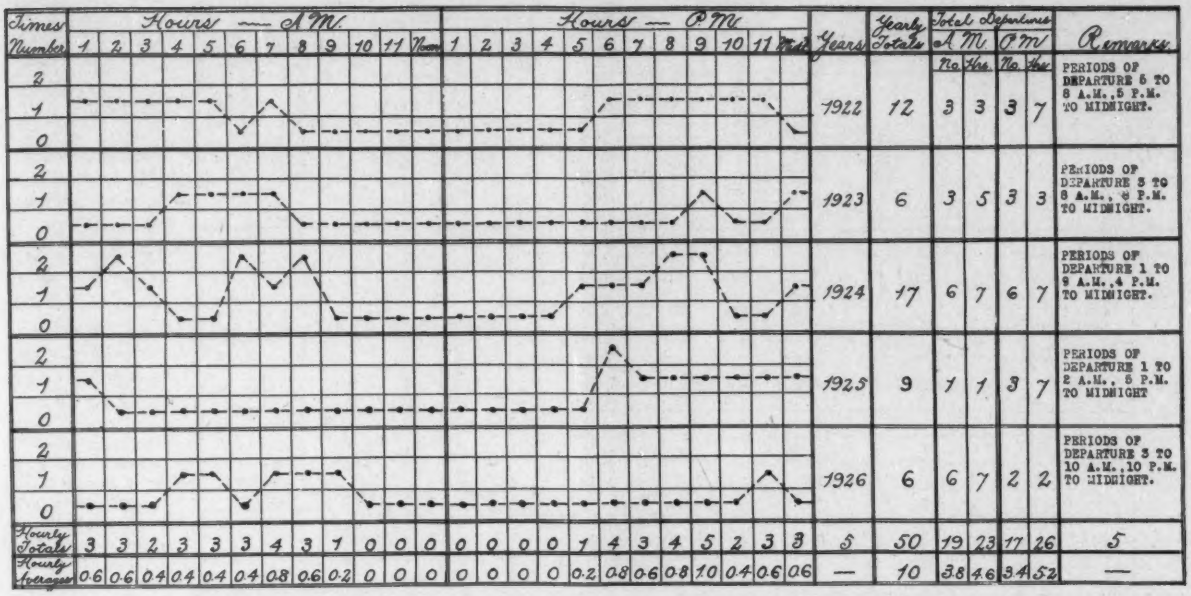

Times — Hours — A.M.
Hours — P.M.
Years
Yearly Totals
Total Departures A.M. No. Hrs. P.M. No. Hrs.
Remarks
1922 12 3 3 3 7 PERIODS OF DEPARTURE 5 TO 8 A.M., 5 P.M. TO MIDNIGHT.
1923 6 3 5 3 3 PERIODS OF DEPARTURE 3 TO 8 A.M., 8 P.M. TO MIDNIGHT.
1924 17 6 7 6 7 PERIODS OF DEPARTURE 1 TO 9 A.M., 4 P.M. TO MIDNIGHT.
1925 9 1 1 3 7 PERIODS OF DEPARTURE 1 TO 2 A.M., 5 P.M. TO MIDNIGHT
1926 6 6 7 2 2 PERIODS OF DEPARTURE 3 TO 10 A.M., 10 P.M. TO MIDNIGHT.
Hourly Totals 3 3 2 3 3 3 4 3 1 0 0 0 0 0 0 0 1 4 3 4 5 2 3 3 5 50 19 23 17 26 5
Hourly Averages 0.6 0.6 0.4 0.4 0.4 0.4 0.8 0.6 0.2 0 0 0 0 0 0 0 0.2 0.8 0.6 0.8 1.0 0.4 0.6 0.6 — 10 3.8 4.6 3.4 5.2 —

PLATE No. XV.—Hourly Curves of Rainfall Occurrence—May. Correlation by Hours and Years for a Tenth of an Inch or More for the Month of May During a Period of 5 Years (1922 to 1926, Inclusive), at New York City.

Observations Made by Automatic Self-Recording Raingage and Checked with a Direct-Measurement-Non-Recording Raingage. Both U. S. Weather Bureau Standard Instruments Located on the Roof of the Station Building, New York City, 394 Feet Above Sea-Level. The Circular Dots (●) in the Rainfall Curves Mark the Hour of Measured and Recorded Precipitation. The Curve-Graph Lines Are Formed on a Uniform Basis and Progress From Left to Right in Regular Sequence. All Departures Are Referred to and Numbered from the Zero Datum Line.

progress of flood crests, due to large curvatures in the stream line, it may be found advisable to resort to the canalization of these sectors, producing the effect of straightening the bends by connecting the foci of the parabola, with a canal providing adequate spillways at the departure and re-entering angles. Such a canal might be found advisable between Dubuque and Muscatine, Iowa, an approximate distance of seventy-five miles; and again, between Peruque and Merrimac, Missouri, using part of the Merrimac River, an approximate distance of thirty-five miles. Again, between Bird Point and New Madrid, Missouri, an approximate distance of thirty miles. The numerous bends along the eastern boundary of Arkansas may be partially eliminated by a direct canal between Helena, Arkansas and Vicksburg, Mississippi, using part of the Yazoo River and its tributaries, an approximate distance of one hundred miles. The large curvatures in the main tributaries to the Mississippi both east and west, act advantageously and by retarding the delivery of their flood crests, gradually release these storm-waters, diminishing the number and height of the crests in the Central Trough.

THERE are seven points of contact in this problem which need to be thought of and acted upon deliberately and wisely. Viz.: 1. The headwaters of the tributaries, acting like a sponge in absorbing atmospheric precipitation. 2. The availability of the headwater regions for impounding storm-waters and holding them for gradual release as a feature of first-hand-flood-control. 3. The introduction of parallel waterways or some adaptable form of canalization, or modification of the Central Trough, to aid in the rapid and safe distributon of storm-waters in their escape to the sea. 4. The construction of spillways to afford larger and better outlets for the delivery of storm-waters to the sea. 5. The reconstruction of levees on a plan to secure greater elevation and to broaden the channel of the Central Trough. 6. The selection of certain areas for permanent overflow, in the making of great conserving basins to retard excessive run-offs, and release storm-waters for service in periods of drought, and in the prevalence of extensive forest fires. Such areas should be found in the headwater districts of the tributaries, where land is usually cheap. 7. Plan for retrieving selected portions of the overflow areas through the cultivation of semi-tropical water-trees, like the Tangal (Rhizophora), the Bacauan (Bruguiera), and the Tabigue (Xylocarpus Obovatus) of the mangrove swamps of the Philippines. These trees are important commercially because of their high value for fire-wood, tan-bark and dye-bark. Reproduction in them is excellent since the trees seed continuously and freely. After removing the barks for commercial use the dried and seasoned wood has high value for fire purposes, being equal to bituminous coal or better, for heating and steaming. The bark when steamed and chemically treated produces a resin of high value for tanning purposes and the preservation of fishing-nets. In British North Borneo, this resin is made in the form of bricks for ready use in shipment to meet commercial requirements. The resin is readily soluble in hot water, into which the nets can be immersed and held for the proper time to secure the required preserving effect. For tanning purposes the resin is superior to that obtained from all other barks and is used in the preparation of the finest leathers. The wood from these trees is very hard and close-grained. They grow in a dense stand, having an average diameter of from six to twelve inches, and an average height of from thirty to forty feet. Thus, the permanent overflow areas of the lower Mississippi Basin may be made commercially productive, serving the double purpose of usefulness and profit.

Insurance interests are deeply concerned in the successful solution of

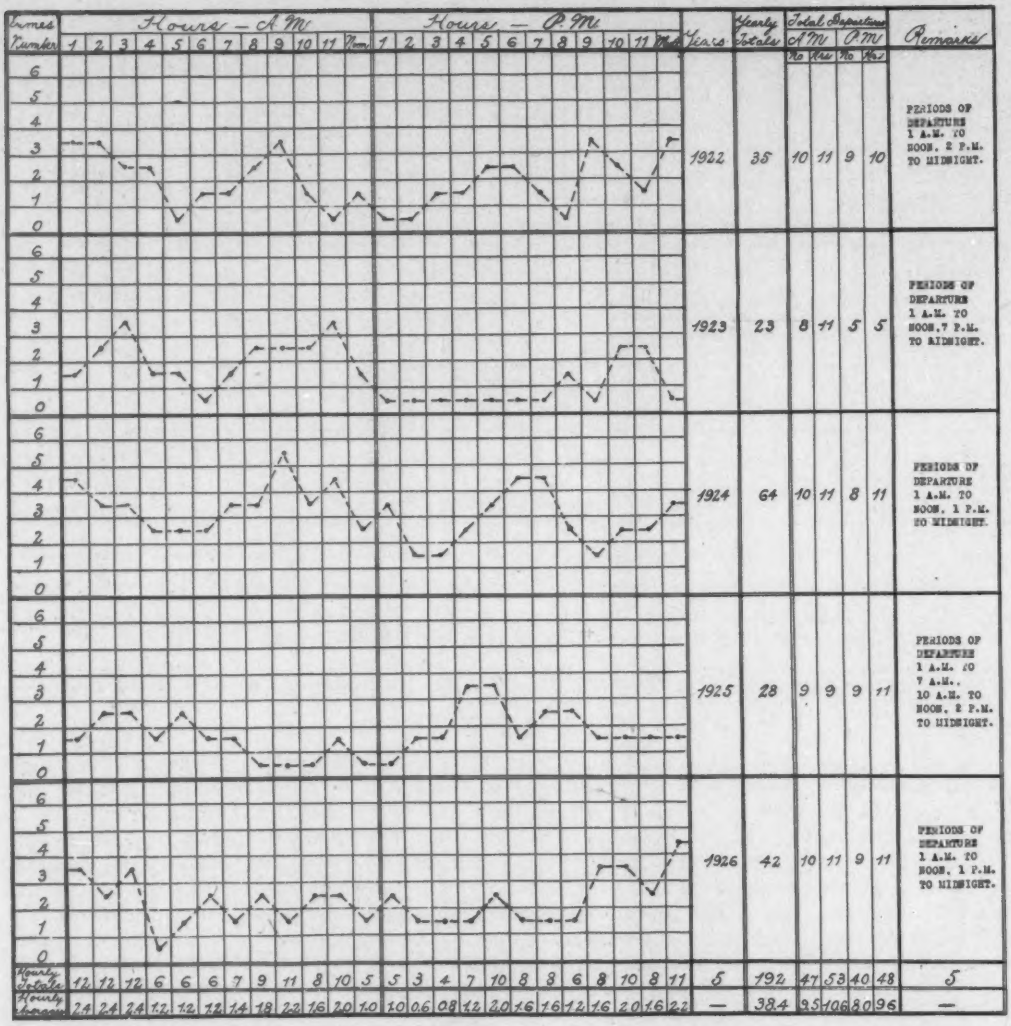

Hours — A.M.
Hours — P.M.
Years
Yearly Totals
Total Departures A.M. No. Days
Total Departures P.M. No. Days
Remarks
1922 35 10 11 9 10
PERIODS OF DEPARTURE 1 A.M. TO NOON, 2 P.M. TO MIDNIGHT.
1923 23 8 11 5 5
PERIODS OF DEPARTURE 1 A.M. TO NOON, 7 P.M. TO MIDNIGHT.
1924 64 10 11 8 11
PERIODS OF DEPARTURE 1 A.M. TO NOON, 1 P.M. TO MIDNIGHT.
1925 28 9 9 9 11
PERIODS OF DEPARTURE 1 A.M. TO 7 A.M., 10 A.M. TO NOON, 2 P.M. TO MIDNIGHT.
1926 42 10 11 9 11
PERIODS OF DEPARTURE 1 A.M. TO NOON, 1 P.M. TO MIDNIGHT.
Hourly Totals 12 12 12 6 6 6 7 9 11 8 10 5 5 3 4 7 10 8 8 6 8 10 8 11 5 192 47 53 40 48 5
Hourly Average 24 24 24 12 12 12 14 18 22 16 20 10 10 06 08 12 20 16 16 12 16 20 16 22 — 384 95 106 80 96 —

PLATE No. XVI.—Hourly Curves of Rainfall Occurrence—May. Correlation by Hours and Years for from One to Nine-Hundredths of an Inch for the Month of May During a Period of 5 Years (1922 to 1926, Inclusive), at New York City.

Observations Made by Automatic Self-Recording Raingage and Checked with a Direct-Measurement - Non-Recording Rain-Gage. Both U. S. Weather Bureau Standard Instruments Located on the Roof of the Station Building, New York City, 394 Feet Above Sea-Level. The Circular Dots (●) in the Rainfall Curves Mark the Hour of Measured and Recorded Precipitation. The Curve-Graph Lines Are Formed on a Uniform Basis and Progress from Left to Right in Regular Sequence. All Departures Are Referred to and Numbered from the Zero Datum Line.

flood control in the Mississippi Basin. The fundamental principles in the safeguarding of investments, and in the protection of undertakings growing out of the permanent reclamation of the submerged areas, of the Great Central Trough of storm-water flow, touch the very foundations of insurance organization, in the project here considered. Entering public and private life at so many angles, insurance companies, like banks, are quasi-public institutions, being strictly accountable to both federal and State authorities for the proper conduct of their business. In flood control of such enormous proportions new hazards must be met, rated, underwritten and new losses scientifically adjusted. These hazards will affect various lines of insurance and may be tentatively designated as follows: The Spillway Outlet Hazard. The Re-entrant Angle Hazard. The Watershed Hazard. The Retaining Wall Hazard. The Drainage Area Hazard. The Check-Dam Hazard. The Canalization Hazard. The Conserving Basin Hazard. The Levee Altitude Hazard. The Central Trough Basic Width Hazard. The Retrieving Area Hazard. The Headwater District Hazard.

All of these risks, being more or less recognized by federal and State laws, demand intelligent and painstaking investigation, and identification, together with the preparation of policy-forms to cover the essentials for both insurer and insured. The rehabilitation in the Mississippi Basin, through federal and State supervision, supplemented by community and individual aid, of nearly a million people, suddenly divested of all of their worldly goods, and of the savings of a lifetime, and the reclamation of several million acres of submerged and cultivated land, presents one of the greatest industrial, commercial and financial problems the world has ever witnessed. The insurance companies will stand with the banks in effecting this remarkable recovery, and in illustrating the treble objective of great investment funds in securing the policy-holder, raising the standard of living, and in financing the most stable industries.

THE discussion of the Daily Rainfall Curves for the 20-year period, 1905 to 1924, inclusive, will continue through the critical local-storm season, ending with the month of September. In this consideration of rainfall occurrence and distribution there is no importance to be attached to the mere names of the days of the week. These names are being used to designate and segregate uniform periods (24 hours) of time, which for convenience and because being universally known, are the best terms to use. We could substitute other names and designations to mark the period of 12 hours of sun-

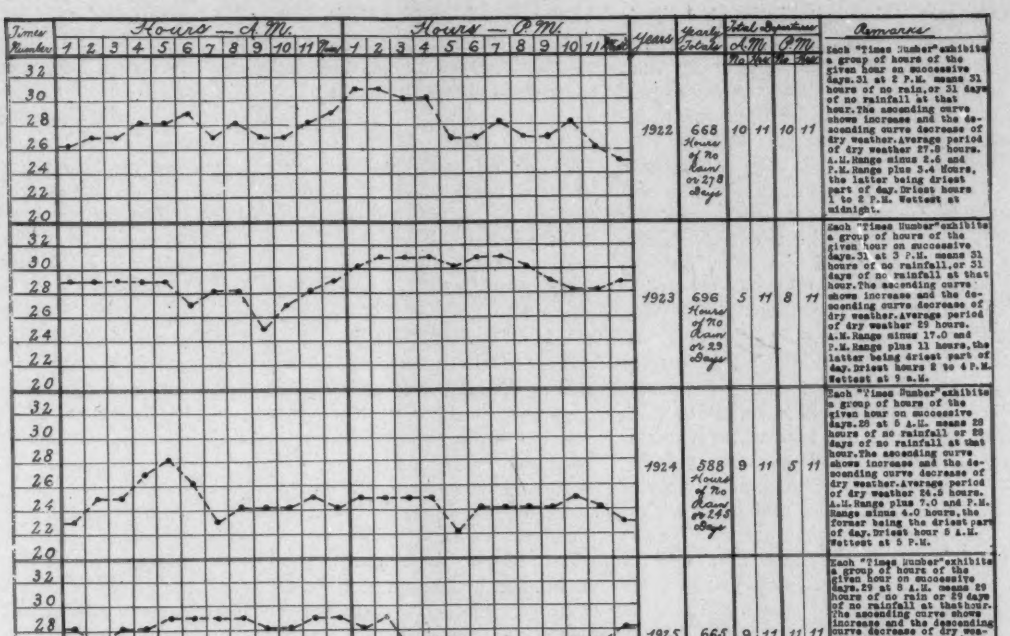


PLATE No. XVII. —Hourly Curves of Dry Weather (Absence of Rain)— May.

Correlation by Hours and Years of NO RAIN for the Months of May During a Period of 5 Years (1922 to 1926, Inclusive), at New York City.

Observations Made by Automatic Self-Recording Raingage and Checked with a Direct-Measurement - Non-Recording Raingage. Both U. S. Weather Bureau Standard Instruments Located on the Roof of the Station Building, New York City, 394 Feet Above Sea-Level. Record Sheets Show Both Rainfall and Absence of Rain. The Circular Dots (●) in the Dry Weather Curves Mark the Beginning and Ending of No Rainfall. The Curve-Graph Lines Are Formed on a Uniform Basis and Progress From Left to Right in Regular Sequence. All Departures Are Referred to and Numbered from the Minimum — 20 — Datum Line.

light and 12 hours of darkness, corresponding to a single revolution of the earth on its axis. If we become still more critical we can point out that in the astronomical relations of the sun and earth the insolation, or radiant energy of the sun, is propagated outward in all directions, so that the earth receives, uninterruptedly, its destined portion. But this insolation is not distributed uniformly over the surface of the earth, not because the earth's orbit is slightly elliptical, but because the axis of the earth, on which it turns once in 24 hours, is not vertical to the plane of its orbit. The inclination is 23½ degrees from the vertical, and in such a direction as to turn the north pole away from the sun on December 21st, and towards the sun on June 20th, forming the two solstices, where the sun appears at its maximum distance south or north of the plane of the earth's equator. Under these conditions the amount of solar radiation received at different latitudes will vary greatly during the year; first, by reason of the varying inclination of the sun's rays to the horizon; second, because the diurnal duration of sunshine (the part of the 24 hours in which the sun appears above the horizon) fluctuates. On this distribution of insolation over the surface of the earth, depends the formation of climatic zones and all the changes due to the seasons.

The equality of the days and nights vary as distance gained from the equator north or south, being always equal at the equator, therefore the amounts of insolation received during a day of 24 hours varies on the earth at different latitudes, and is zero at the poles, where the sun's rays pass tangent to the surface of the earth.

The altitude of the sun over an observer's horizon attains its maximum at noon. On and within five degrees of the equator, the noon altitude of the sun will be 90 degrees throughout the year. Elsewhere the noon rays will fall obliquely and their effect lessen as they spread over a greater surface than their cross-section. This may be likened to the noon sunshine in winter, on a north and south road passing over a hill, the snow on the southern slope, receiving the insolation more nearly at right angles to the surface, may be melted, while it remains frozen on the northern slope where the sun's radiant energy falls more obliquely. Southern latitudes have more oblique sunshine and shorter days, until beyond latitude 66½ degrees, where the night is 24 hours long and the insolation for the entire southern frigid zone is zero. North of the equator, the sun reaches the zenith over latitude 23½ degrees, and, as the day is more than 12 hours long, the amount of insolation received at this latitude, on the solstice, is greater than that received at the equator on the equinox. Progress further north is attended for a time by an increase in the value of diurnal insolation, by reason of the fact that the loss from the lower noon solar altitude is overcome by the increase from the greater length of the day, the maximum being reached at 40

degrees. Beyond this north latitude there is a gradual weakening as the decreasing solar altitude more than compensates for the continued gain in the length of the day, the minimum being found just beyond latitude 60 north. Beyond this latitude the increasing length of the day and the presence of the sun above the horizon, during the whole 24 hours, cause a decided increase in the amount of diurnal insolation, attaining a marked maximum at the pole, where the amount received is decidedly greater than at the equator on any day of the year. However, this increase of solar radiation does not make polar temperatures equal to equatorial temperatures, and for two reasons: 1st, the immense spread and thickness of ice and snow within the Arctic and Antarctic Circles; and, second, the fact that radiant solar energy does not produce its maximum heating effect until after its absorption by the earth. Covered perpetually by great accumulations of snow and ice, radiant energy cannot reach the earth in the polar regions, where the temperature remains from 40 to 60 degrees below zero throughout the year.

IT WILL thus be seen that our first announcement, as to the insignificance of the names of the days of the week is justified. It is apparent that these names are simply part of a useful nomenclature, conveniently adapted for daily human needs. The same may be said of the names of the month and of the seasons. The periods thus designated, as a part of the terrestrial year, possess certain interesting and important relations to the analysis of the constituent elements of atmospheric circulation and dynamical development. The periods of 12-, 36- or 48-hour notations may prove more fruitful of deductive development than the 24-hour period. The variation in the amount of solar radiation at different latitudes affects the occurrence and distribution of all meteorological elements and climatological values, especially rainfall and temperature, therefore our daily correlation of rainfall curves.

The leading features of the Daily Rainfall Curves for the weekly period in July shows, as compared with similar values in May and June, the following average variations: plus 7.5 in deviations; plus 10 in number of days of rain; minus 6.5 in number of days of no rain; plus 0.2 in the amplitude of daily rainfall curves; plus 7.5 in the number of years of rainfall; plus 1.5 in the number of repeated days of rainfall; plus 4 in the number of repeated years of rainfall. On the whole, July, for the 20-year period, 1905 to 1924, inclusive, shows the effect of increased rainfall as the summer season progresses, as illustrated in the final analysis of Plates No. I to No. XI, inclusive. The maximum change occurs in the marked increase in the number of rainy days and the least change, in the amplitude of rainfall curves, one day being much like an-

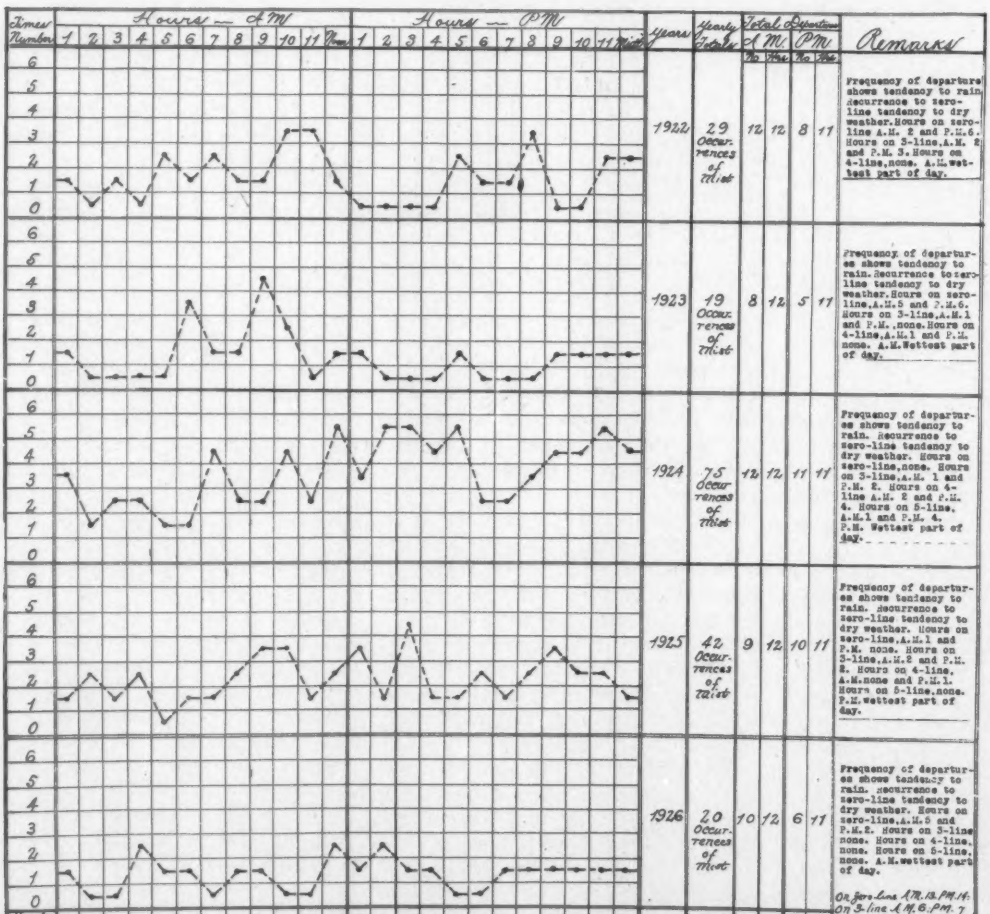

Times Number
Hours — A.M.
Hours — P.M.
Years
Hourly Totals
Total Departures
A.M.
P.M.
No.
Mm.
Remarks
1922
29 Occurrences of Mist
12 12 8 11
Frequency of departures shows tendency to rain. Recurrence to zero-line tendency to dry weather. Hours on zero-line A.M. 2 and P.M. 6. Hours on 3-line, A.M. 2 and P.M. 3. Hours on 4-line, none. A.M. wettest part of day.
1923
19 Occurrences of Mist
8 12 5 11
Frequency of departures shows tendency to rain. Recurrence to zero-line tendency to dry weather. Hours on zero-line, A.M. 5 and P.M. 6. Hours on 3-line, A.M. 1 and P.M. none. Hours on 4-line, A.M. 1 and P.M. none. A.M. Wettest part of day.
1924
75 Occurrences of Mist
12 12 11 11
Frequency of departures shows tendency to rain. Recurrence to zero-line tendency to dry weather. Hours on zero-line, none. Hours on 3-line, A.M. 1 and P.M. 8. Hours on 4-line A.M. 2 and P.M. 4. Hours on 5-line, A.M. 1 and P.M. 4. P.M. Wettest part of day.
1925
42 Occurrences of Mist
9 12 10 11
Frequency of departures shows tendency to rain. Recurrence to zero-line tendency to dry weather. Hours on zero-line, A.M. 1 and P.M. none. Hours on 3-line, A.M. 2 and P.M. 8. Hours on 4-line, A.M. none and P.M. 1. Hours on 5-line, none. P.M. wettest part of day.
1926
20 Occurrences of Mist
10 12 6 11
Frequency of departures shows tendency to rain. Recurrence to zero-line tendency to dry weather. Hours on zero-line, A.M. 5 and P.M. 2. Hours on 3-line none. Hours on 4-line, none. Hours on 5-line, none. A.M. wettest part of day.
On Zero-Line A.M. 13, P.M. 14.
On 3-line A.M. 6, P.M. 7
On 4-line A.M. 3, P.M. 5
On 5-line A.M. 1, P.M. 4
A.M. Least part of Day
A.M. 3, P.M. 2
Hourly Totals
Hourly Means
5 185 51 60 40 55
— 37.0 10.2 12.0 8.0 11

PLATE No. XVIII.—Hourly Curves of Mist Occurrence—May.

Correlation by Hours and Years for a Trace (Too Small to Measure) of Rainfall for the Month of May During a Period of 5 Years (1922 to 1926, Inclusive), at New York City.

Observations made by Automatic Self-Recording Raingage and Checked with a Direct-Measurement - Non-Recording Raingage. Both U. S. Weather Bureau Standard Instruments Located on the Roof of the Station Building, New York City, 394 Feet Above Sea-Level. The Circular Dots (●) in the Rainfall Curves Mark the Hour of Measured and Recorded Precipitation. The Curve-Graph Lines Are Formed on a Uniform Basis and Progress from Left to Right in Regular Sequence. All Departures are Referred to and Numbered from the Zero Datum Line.

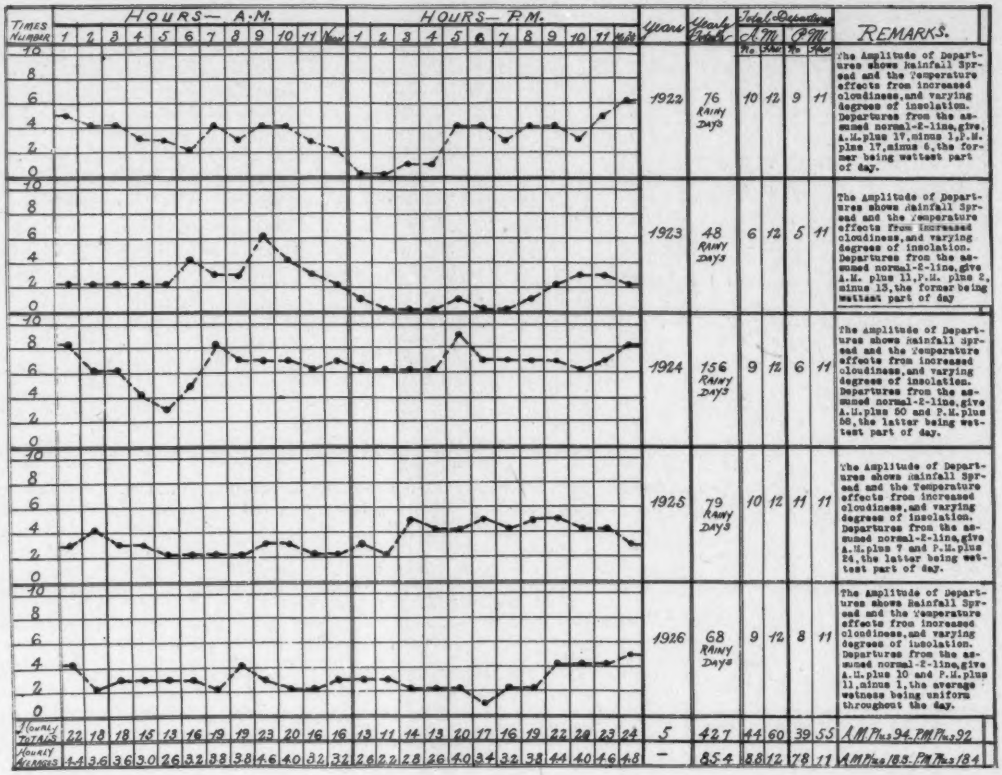


PLATE No. XIX.—Hourly Curves of Rainy Days—May. Correlation by Hours and Years of the Occurrence of Rainy Days (the Sum of traces, One to Nine Hundredths, and a Tenth of an Inch or more) for the Month of May During a Period of 5 Years (1922 to 1926 Inclusive) at New York City.

Observations Made by Automatic Self-Recordcording Raingage. Both Checked With a Direct-Measurement-Non-Recording Raingage. Both U. S. Weather Bureau Standard Instruments Located on the Roof of the Station Building, New York City, 394 Feet Above Sea-Level. The Circular Dots (●) in the Rainy Day Curves Show the Fluctuations in the Occurrence of Rainfall for All Amounts from Hour to Hour Throughout the 24-Hour Period; Including Traces That Usually Result in a Measured Fall Before the Termination of the Specific Day on Which They Occur. The Curve Graph Lines Are Formed on a Uniform Basis and Progress from Left to Right in Regular Sequence. All Departures Are Referred to and Numbered from the Minimum — Zero— Datum Line.

other. In the final analysis of Plates No. XIII and XIV we find, (a) that in both rainfall occurrence and rainfall spread there is a gradual increase from May to July, (b) that the day of the week is an immaterial factor in both rainfall occurrence and rainfall spread.

In each of the three months of May, June and July, for the period of 20 years, 1905 to 1924, inclusive, a single year has been found deficient in recording a tenth of an inch or more of rainfall, between the hours of 2 P. M. and 9 P. M. In May it was the year 1905, in June 1914 and in July 1910, the totals and deficiencies in these years being as follows: May, 1905, 1.12 inches and 2.06 inches below the normal. June, 1914, 1.83 inches and 1.43 inches below the normal. July, 1910, 0.23 inches and 4.31 inches below the normal. July therefore develops as a month of extreme fluctuations, being at both extremes of excess and deficiency, in the record for 20 years, as compared with May and June for the same period.

Comparing the A. M. and P. M. records of May and June, and July in their deficient years, the A. M. for May is in excess of the P. M. record by plus 1.02 inches. The A. M. record for June is in excess of the P. M. record by plus 0.11 inches; and the A. M. record in July is above the P. M. record by plus 0.17 inches. In general, while the A. M. record shows a larger quantity of rainfall and a greater number of occurrences, the P. M. record shows the largest number of violent local storms, the natural outcome of embracing the hottest part of the day.

In this article we have begun the analysis of hourly rainfall and have worked out the curves for the month of May, during a period of five years, 1922 to 1926, inclusive. The general results obtained show the year 1924 as being the wettest, and the year 1923 as the driest. Comparisons are developed between the morning and afternoon 12-hour periods, in the interest of Rain Insurance. These comparisons are classified according to the number of rainfall occurrences, by hours for the measured amounts of trace, one-hundredth to nine-hundredths of an inch, and of one-tenth of an inch or more; also for rainy days and the days of no rain.

IN GENERAL, the rainfall occurrences in May have been most frequent in the forenoon and in the ratio of 3 to 2. In the number of rainy days the forenoon is slightly in excess. In the occurrence of a tenth of an inch or more, the afternoon is in excess and generally from 6 P. M. to midnight. The forenoon departure is generally from 3 A. M. to 7 A. M. In the occurrence of one- to nine-hundredths of an inch the forenoon is 1 to 1.5 in excess, and generally from 1 A. M. to noon. The afternoon departure is generally from 3 P. M. to midnight. In the absence of rain the afternoon is slightly (0.2) in excess. The driest period ranges from 5 A. M. to noon and 1 P. M. to 6 P. M. The wettest period ranges from 9 A. M. to 9 P. M., and at midnight.

The most important insurance lessons to be derived from the intensive survey in this article are summarized as follows:

1. The many new hazards arising from the failure of the old system of flood control in the Mississippi Basin.

2. The necessity for an intensive and comprehensive study of rainfall occurrence and distribution in the United States, in the light of flood losses in the Mississippi Basin for 1927.

3. The flood losses in the Mississippi Valley began in the first week of April, 1927, preceded by local floods in some of the western tributaries, in the latter part of August, 1926, continuing for the remainder

DAY OF WEEK	NUMBER OF DEVIATIONS IN RAINFALL CURVE	NUMBER OF SEPARATE DAYS OF RAIN	DAYS OF MONTH ON WHICH RAIN FELL	NUMBER OF DAYS OF NO RAINFALL	AMPLITUDE OF DAILY RAINFALL CURVE	NUMBER OF DAYS IN AMPLITUDE	YEARS OF ** RAINFALL	TOTAL YEARS OF RAINFALL	NUMBER OF REPEATED RAINFALL DAYS OF MONTH	NUMBER OF REPEATED RAINFALL YEARS
SUNDAY	7	7	6(14)15,20,21, (22)30.	24	6th to 30th	25	1905(1912)1917,1918, (1919) (1923)	6	2	3
MONDAY	9	11	2,3,9,10,12,17, 19, 24, 27, 28 31	20	2nd to 31st	30	(1905)1906,1911,1913, 1914,1917(1920) (1922)	8	NONE	3
TUESDAY	10	12	(3)8,10,14,17, 18,19(21)22,24 25,30	19	3rd to 30th	28	[1905] (1908)1914,1916 1917,1918,1919,1921, 1922,1923,1924	11	2	2
WEDNESDAY	6	7	14,19,21,26,28 29,31	24	14th to 31st	18	1905,1914(1915)1916, 1918, 1920	6	NONE	1
THURSDAY	8	5	[11] (13) 22 (23) 31	26	11th to 31st	21	1907,1908,1912,1914 1916,1918,1920,1922 1924	9	3	NONE
FRIDAY	6	8	14,15,16,18,21 23, 28, 29.	23	14th to 29th	16	(1909)(1911)1919(1921) 1922	5	NONE	3
SATURDAY	7	8	1(8)12,13,14 17,19,21	23	1st to 25th	25	1905,1908,1913,1915, 1917,1918,1919 (1922)	8	1	1
TOTALS	53	58	58	169	51 - 207	163	53	53	8	13
AVERAGES	7.58	8.28	8.28	22.7	7.28 - 29.6	23.3.	7.58	7.58	1.14	1.85

Correlation of Daily Rainfall Curves in July for the Weekly Period, Sunday to Saturday, Inclusive. Rainfall of a Tenth of an Inch or More for the Hours 2 P. M. to 9 P. M. During Twenty Years (1905 to 1924, Inclusive), at the U. S. Weather Bureau Station of New York City.

Explanation of Symbols: Numbers enclosed in brackets ( ) Show One Repeat or Two Occurrences. Numbers enclosed in square [ ] Show Two Repeats or Three Occurrences.

The Column Headed "Number of Days of No Rainfall" Means Days on Which the Rainfall, If Any Occurred, Was Less Than One-Tenth of an Inch, Between the Hours of 2 P. M. and 9 P. M.

**The Days of the 4th, 5th and 7th of July Had No Record of Rainfall from 2 P. M. to 9 P. M. of a tenth of an inch or more, during the 20-Year Period, 1905 to 1924 Inclusive. All of the Other Days of the Month Are Represented by Some degree of precipitation.*

***The Year 1910 Had No Record of Rainfall in July, from 2 P. M. to 9 P. M., of a Tenth of an Inch or More. All Other Years of the 20-Year Period Are Represented. THESE EXCEPTIONS DISCUSSED IN THE TEXT.*

	DAYS OF MONTH	TIMES OF OCCURRENCE MORNING	AMOUNT INCHES	DATES OF NO RAIN	DAYS OF NO RAIN	CHARACTER OF WEATHER.
	July 1st	NONE	ZERO	1st	1	LIGHT HAZE AND WARM
	July 2nd	NONE	ZERO	2nd	1	LIGHT HAZE AND WARM
	July 3rd	NONE	ZERO	3rd	1	LIGHT HAZE AND FOG AND WARM
	July 4th	NONE	ZERO	4th	1	PARTLY CLOUDY AND WARM
	July 5th	NONE	ZERO	5th	1	CLEAR AND WARM
	July 6th	NONE	ZERO	6th	1	LIGHT HAZE. WARMER
	July 7th	NONE	ZERO	7th	1	HAZY AND CLOUDY. WARMER
	July 8th	NONE	ZERO	8th	1	HAZY AND CLOUDY. VERY WARM
	July 9th	NONE	ZERO	9th	1	HAZY AND CLOUDY. HOT
	July 10th	NONE	ZERO	10th	1	CLOUDY. SULTRY
	July 11th	NONE	ZERO	11th	1	CLEAR AND COOLER
	July 12th	NONE	ZERO	12th	1	PARTLY CLOUDY. COOLER
	July 13th	NONE	ZERO	13th	1	PARTLY CLOUDY. WARMER
	July 14th	NONE	ZERO	14th	1	CLEAR. WARMER
	July 15th	NONE	ZERO	15th	1	CLEAR AND HOT
	July 16th	NONE	ZERO	16th	1	PARTLY CLOUDY AND SULTRY
	July 17th	5:00 A.M. to 5:28A.M. 4:00 A.M. to 4:40 A.M. 5:00 A.M. to 5:55 A.M.	0.06 0.02 0.01	---	---	CLOUDY AND COOLER
	July 18th	7:00 A.M. to 7:10 A.M. 8:00 A.M. to 8:50 A.M.	TRACE TRACE	---	---	CLOUDY AND COOLER
	July 19th	NONE	ZERO	19th	1	CLOUDY AND COOLER
	July 20th	NONE	ZERO	20th	1	CLEAR AND COOLER
	July 21st	NONE	ZERO	21st	1	CLEAR AND COOLER
	July 22nd	NONE	ZERO	22nd	1	CLEAR AND WARMER
	July 23rd	NONE	ZERO	23rd	1	PARTLY CLOUDY AND WARMER
	July 24th	NONE	ZERO	24th	1	CLEAR AND HOT
	July 25th	NONE	ZERO	25th	1	PARTLY CLOUDY AND COOLER
	July 26th	NONE	ZERO	26th	1	CLEAR AND COOLER
	July 27th	NONE	ZERO	27th	1	PARTLY CLOUDY AND WARMER
	July 28th	3:25 A.M. to 3:35 A.M.	TRACE	---	---	CLOUDY AND WARMER
	July 29th	NONE	ZERO	29th	1	CLEAR AND HOT
	July 30th	6:00A.M. to 6:30 A.M. 7:40 A.M. to 7:57 A.M. 8:06 A.M. to 8:23 A.M. 9:00 A.M. to 9:55 A.M. 10:00 A.M. to 10:43 A.M. 11:00 A.M. to 11:10 A.M.	0.08 0.08 TRACE TRACE TRACE TRACE	---	---	CLOUDY AND COOLER.
	July 31st	NONE	ZERO	31st	1	PARTLY CLOUDY AND COOLER
TOTALS	4-Rain Dates 27-Day Intervals 3-Rain Periods	12 Occurrences 6 Hours and 6 Minutes	0.30 7-Traces	27-Day Intervals	27	10-Clear Days 21-Cloudy Days
AVERAGES	2h-8'-38"	0h-31'-42"	0.04	3-Rain Periods	0h-9'-36"	CLOUDY AND HAZY

The A. M. Rainfall and Weather of 1910 for July at New York City, New York.

The Above Tabulation Shows the Abnormal Rainfall and Weather Features of July, 1910, During Which the Usual Characteristics of This Month Were Absent and Strikingly Deficient in Both Halves of Each Day. Yearly Comparison for a Period of 20 Years (1905 to 1924 Inclusive), Not Alone for the Critical Hours of 2 P. M. to 9 P. M., But on no Day During July, 1910, Did the Rainfall Equal or Exceed One-Tenth of An Inch.

of the year at intervals. Late in December local floods began in the eastern tributaries of the Ohio, Cumberland and Tennessee, followed by another flood stage in January, 1927. In February and March local floods were resumed in the western tributaries. Thus flood crests began in the western and eastern sectors in the latter part of 1926 and were carried forward into 1927, and are continuing to date, June, 1927. These data constitute an important element in a survey of the flood insurance problem of the Mississippi Valley, and show how the survey must be taken up and pursued.

4. The many problems of Weather Insurance likely to be developed in connection with the rehabilitation of the submerged areas in the Mississippi Basin, involving life and property, and the resumption of the normal life abruptly terminated by the flood, affecting about 800,000 people. Various lines of insurance are involved in the adjustment of these problems.

5. The growing development of the research work on THE RAINFALL HAZARD manifests a tendency to indicate that the variable factors of occurrence and frequency associated with the days of the week shows a decided falling off in importance, and appreciable results.

6. The grouping of other periods than a weekly period, and of other hours than a 24-hour period will provide useful and suggestive compari-

	DATE OF MONTH	TIMES OF OCCURRENCE AFTERNOON	AMOUNT INCHES	DATES OF NO RAIN	DAYS OF NO RAIN	CHARACTER OF WEATHER
	July 1st	NONE	ZERO	1st	1	LIGHT HAZE. MAX.TEMP. 86°
	July 2nd	NONE	ZERO	2nd	1	LIGHT HAZE. MAX.TEMP. 86°
	July 3rd	NONE	ZERO	3rd	1	LIGHT HAZE AND FOG. MAX.TEMP.88°
	July 4th	NONE	ZERO	4th	1	CLOUDY AND WARM. MAX.TEMP 87°
	July 5th	NONE	ZERO	5th	1	PARTLY CLOUDY. WARM. MAX.TEMP 86°
	July 6th	NONE	ZERO	6th	1	HAZY AND CLOUDY. WARM. MAX.TEMP 88°
	July 7th	NONE	ZERO	7th	1	CLOUDY AND WARMER. MAX.TEMP. 89°
	July 8th	NONE	ZERO	8th	1	HAZY AND CLOUDY. VERY WARM MAX.TEMP. 90
	July 9th	NONE	ZERO	9th	1	HAZY AND CLOUDY. HOT MAX.TEMP. 91°
	July 10th	2:48 P.M. to 3:26 P.M.	TRACE	---	---	CLOUDY-THUNDERSTORM. VERY HOT MAX.TEMP. 98°
	July 11th	NONE	ZERO	11th	1	PARTLY CLOUDY. COOL. MAX.TEMP. 86°
	July 12th	11:40 P.M. to Midnight	TRACE	---	---	CLOUDY AND COOLER. MAX.TEMP.86°
	July 13th	12:30 P.M. to 1:05 P.M.	TRACE	---	---	PARTLY CLOUDY. WARMER. MAX.TEMP.86°
	July 14th	NONE	ZERO	14th	1	CLEAR. WARMER. MAX.TEMP. 89°
	July 15th	NONE	ZERO	15th	1	CLEAR AND HOT. MAX.TEMP. 90°
	July 16th	6:10 P.M. to 6:20 P.M. 6:22 P.M. to 6:40 P.M. 7:00 P.M. to 8:20 P.M.	TRACE 0.05 TRACE	--- --- ---	--- --- ---	CLOUDY AND SULTRY. MAX.TEMP. 91°
	July 17th	NONE	ZERO	17th	1	CLOUDY AND COOLER. MAX.TEMP. 89°
	July 18th	NONE	ZERO	18th	1	CLOUDY AND COOLER. MAX.TEMP. 87°
	July 19th	4:39 P.M. to 4:53 P.M.	TRACE	---	---	CLOUDY AND COOLER. MAX.TEMP. 86°
	July 20th	NONE	ZERO	20th	1	CLEAR AND COOLER. MAX.TEMP. 86°
	July 21st	NONE	ZERO	21st	1	CLEAR AND COOLER. MAX.TEMP. 82°
	July 22nd	NONE	ZERO	22nd	1	CLEAR AND WARMER. MAX.TEMP. 84°
	July 23rd	NONE	ZERO	23rd	1	PARTLY CLOUDY AND WARMER MAX.TEMP. 89°
	July 24th	NONE	ZERO	24th	1	CLEAR AND HOT. MAX.TEMP. 94°
	July 25th	NONE	ZERO	25th	1	PARTLY CLOUDY AND COOLER MAX.TEMP. 91°
	July 26th	NONE	ZERO	26th	1	CLEAR AND COOLER. MAX.TEMP. 86°
	July 27th	NONE	ZERO	27th	1	PARTLY CLOUDY AND WARMER MAX.TEMP. 88°
	July 28th	NONE	ZERO	28th	1	CLOUDY AND WARMER. MAX.TEMP.89°
	July 29th	NONE	ZERO	29th	1	CLEAR AND WARMER. MAX.TEMP. 91°
	July 30th	NONE	ZERO	30th	1	CLOUDY AND COOLER. MAX.TEMP. 90°
	July 31st	NONE	ZERO	31st	1	PARTLY CLOUDY AND COOLER MAX.TEMP. 88°
TOTALS	5-Rain Dates 26-Day INTERVALS	7 Occurrences 3 Hours and 15 Minutes	0.05 6-Traces	26-Day Intervals	26	10 Clear Days 21 Cloudy Days 2734 Degrees of Heat
AVERAGES	4-RAIN PERIODS 0h-40'-15"	0h-26'-25"	0.02	4-Rain Periods	0h-49'-15"	CLOUDY AND HAZY MAX.TEMP. 88.2°

The P. M. Rainfall and Weather of 1910 *for July at New York City, N. Y.*

The Above Tabulation Shows the Abnormal Rainfall and Weather Features of July,* 1910, *During Which the Usual Characteristics of This Month Were Absent and Strikingly Deficient in Both Halves of Each Day. Yearly Comparison for a Period of* 10 *Years* (1905 *to* 1914 *Inclusive), Not Alone for the Critical Hours of* 2 *P. M. to* 9 *P. M., But on No Day During July,* 1910, *Did the Rainfall Equal or Exceed One-Tenth of an Inch.

sons with the results already attained in the employment of the astronomical day, and the astrological weekly calendar. The astronomical day may be grouped for longer or shorter periods by the use of the terms of First-day, Second-day, Third-day, etc.

7. That the study of the occurrence, frequency and distribution of rainfall, in correlation with the appearance and passage of specific Cyclonic Lows may disclose pregnant relations with the days of the month or other groups of astronomical days.

8. Instructive results are likely to follow the study of rainfall problems in relation to the rating of rainfall hazards when the investigation is closely associated with the endless chain of the natural round of the forces of evaporation and condensation, between land and water areas.

9. The rainfall insurance problem, in relation to the occurrence, frequency and distribution of precipitation between the two halves of the day (12-hour periods) should be considered in relation to the temperature curve, and still better results might be obtained by the introduction of the humidity curve, in correlation with the other data.

10. The association of rainfall occurrence, frequency and distribution with the form, depth and progressive velocity of Cyclonic Lows is a perfectly natural method of analysis and the correlation would be productive of useful results could be connected up with hourly, daily, weekly and monthly periods. This study is meteorological, not mathematical. There is also the factor of climatological-loss-experience present.

Wait and See

"Our number is 246 and my name is Hazel," a small child informed "long distance."

"What is your name, please?" asked the operator.

"Hazel."

"What is your last name?"

"My name is Hazel."

"Hazel what—what name comes after Hazel?"

"I don't know; I'm not married yet."—*Ex.*

Distinguished German Visitor

PROFESSOR ALFRED MANES, LL. D., Ph. D., Lecturer of Insurance at the University of Berlin and Commercial High-School of Berlin, for twenty-five years President of the German Society for Insurance-Science, and well known to American actuaries as interpreter of the 3rd International Congress of Actuaries, held in New York, 1903, is in this country, to study the progress of American insurance.

He will visit New York, Hartford, Philadelphia, Albany, Washington and other of the more important cities, and will remain in America until some time in October. Professor Manes has published many works on insurance, the most well known being Versicherungs-Lexikon (*Insurance-Encyclopaedia*). Recently he has been in touch with American actuaries during the actuarial congress in London, where he was elected one of the Secretaries of the Presidium.

Property and Casualty Insurance

(Continued from page 20)

cause, it should be the conscious endeavor of the insurance organizations in this country to create a greater public appreciation of the very important part that is played by insurance in making it possible for American business to be conducted according to our high-grade twentieth century methods.

Boston's Traffic Jam

Motor Cop (to professor of mathematics): "So you saw the accident, sir. What was the number of the car that knocked this man down?"

Professor: "I'm afraid I've forgotten it. But I remember noticing that if it were multiplied by fifty, the cube root of the product would be equal to the sum of the digits reversed."—*Boston Transcript.*

Apparently Not Yet

Josephine: Are they engaged?

Georgiana: Not yet. He still buys orchestra seats when they go to a show.

Super Economy

The Scotchman was asked by the truant officer why he didn't send his children to school, and replied he was afraid they'd have to pay attention.

INSURANCE COST

SAVING IN COST

Associated Mutuals

Grain Dealers Mutual Fire Insurance Company
Automobile Mutual Fire Insurance Company
Automobile Mutual Liability Insurance Company
Beacon Mutual Fire Insurance Company

An organization of Massachusetts Mutual Insurance Companies associated under one management and devoted to reducing insurance costs. Dividends 20% to 25%.

Associated Mutuals

211 Congress Street
Boston, Mass.
A. Shirley Ladd, Secretary

In August Prepare for the Harvest

(*Continued from page* 14)

until August to write this editorial. And the essence of insurance is preparedness for eventualities. Your mutual insurance policy, and, by the way, August is a good month to check up on your insurance—is your fore-handed answer to old man Casualty if he comes your way. He will not be welcome and we hope he doesn't come, but should he you are ready for him—or ought to be.

And a little hard-headed, clear-visioned thought and effort in what we have been accustomed to regard as "slack August" will provide parking space in your business for smiling Dame Fortune's car when it honks up to the curb.

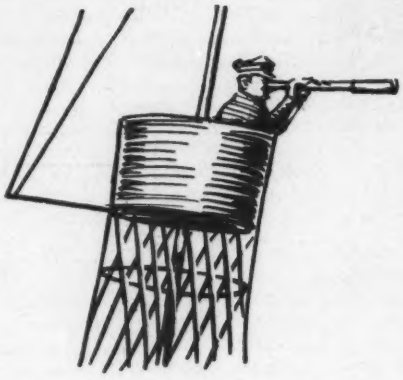
Golf Tournament Entry Blank

WASHINGTON, D. C., SEPT. 19 TO 22

Name.....
Company Address.....
Name of Golf Club.....
Length of Course.....Par.....
Three Lowest Scores on Above Course in 1926.....
Club Handicap.....

Return to GOLF COMMITTEE
FEDERATION OF MUTUAL FIRE INS. COS.
180 N. Michigan Ave. CHICAGO, ILLINOIS

Standing Watch



Why a watch on board ship?

A single vessel with the whole trackless ocean to ride on. With courses charted and instruments of every description to aid her—and yet the watch! Why the watch?

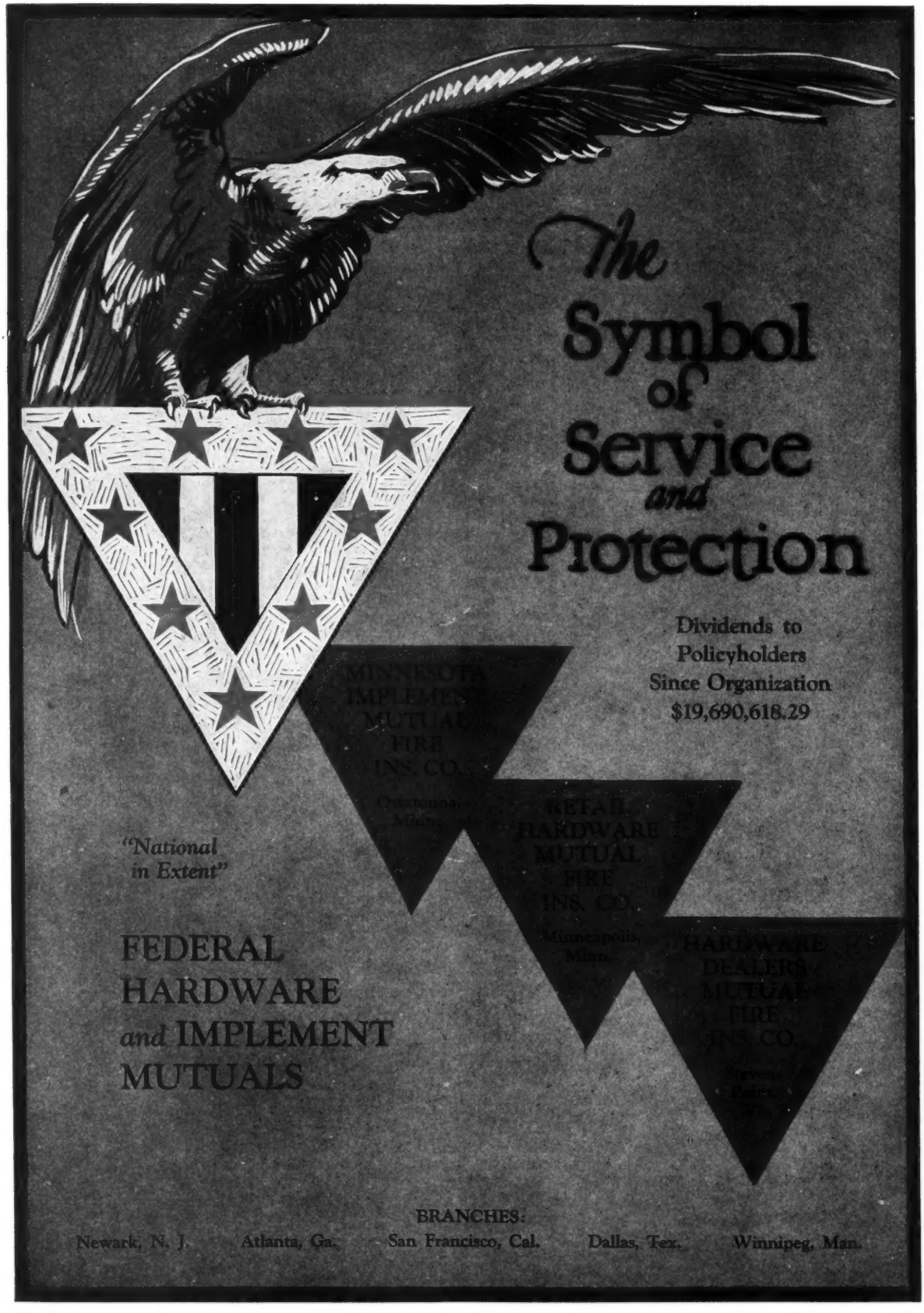
Because the centuries of experience of men who have sailed the seas have taught that anything can happen at any time—and that the way to a long life and a happy one lies in care, caution and eternal vigilance.

And here we ride in motor cars—potentially more dangerous than a vessel at sea, for the traffic is thicker, the hazard greater and we don't always have a "watch" on deck.

If "keeping-watch" is good business at sea, it is good business on land. Eternal vigilance and watchful care will save lives. Help reduce accidents. Think Safety.

* * *

HARDWARE MUTUAL CASUALTY COMPANY
STEVENS POINT, WISCONSIN


The Symbol of Service and Protection
Dividends to Policyholders Since Organization $19,690,618.29
MINNESOTA IMPLEMENT MUTUAL FIRE INS. CO.
Owatonna, Minn.
RETAIL HARDWARE MUTUAL FIRE INS. CO.
Minneapolis, Minn.
HARDWARE DEALERS MUTUAL FIRE INS. CO.
"National in Extent"
FEDERAL HARDWARE and IMPLEMENT MUTUALS
BRANCHES:
Newark, N. J.
Atlanta, Ga.
San Francisco, Cal.
Dallas, Tex.
Winnipeg, Man.

"L-M-C" PROTECTS PUBLIC AND WORKMEN WHILE WHITE HOUSE GETS NEW ROOF

[Pacific and Atlantic Photo.]

WORK ON NEW ROOF OF THE WHITE HOUSE COMPLETED New permanent roof of executive mansion, constructed of cement, tile and slate, termed "excellent job."

(Reprint from Chicago Tribune, July 11, 1927)

Liability Insurance on This Important Work Was Placed in the

Lumbermens Mutual Casualty Company

JAMES S. KEMPER, President

Pantheon Building **Chicago, U. S. A.**

ATLANTA	BUFFALO	NEWARK	PHILADELPHIA	ST. LOUIS
BALTIMORE	MILWAUKEE	NEW YORK	PITTSBURGH	SYRACUSE
BOSTON	MINNEAPOLIS	OMAHA	SAN FRANCISCO	TORONTO

Annual Cash Dividends to Policyholders Since Organization